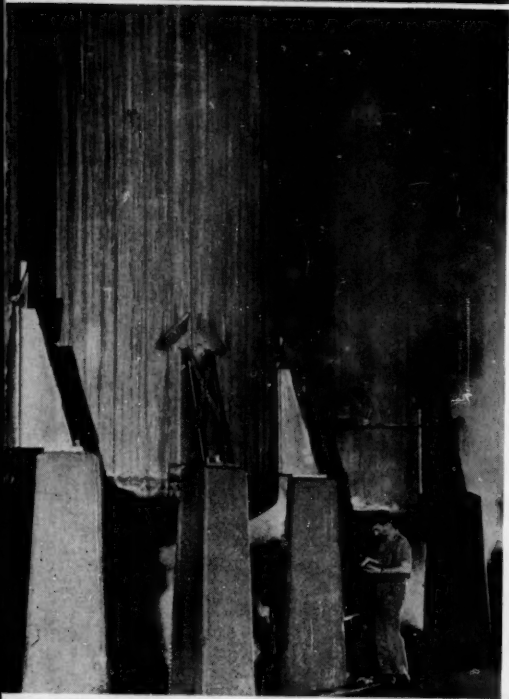
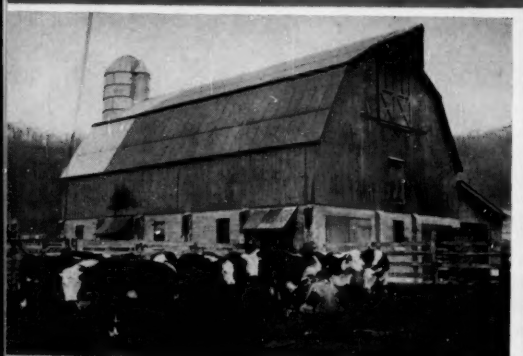


Chemical Week

December 22, 1956

Price 35 cents



New titanium competition: Allied, Kennecott will venture \$40 million on continuous process. . . . p. 21

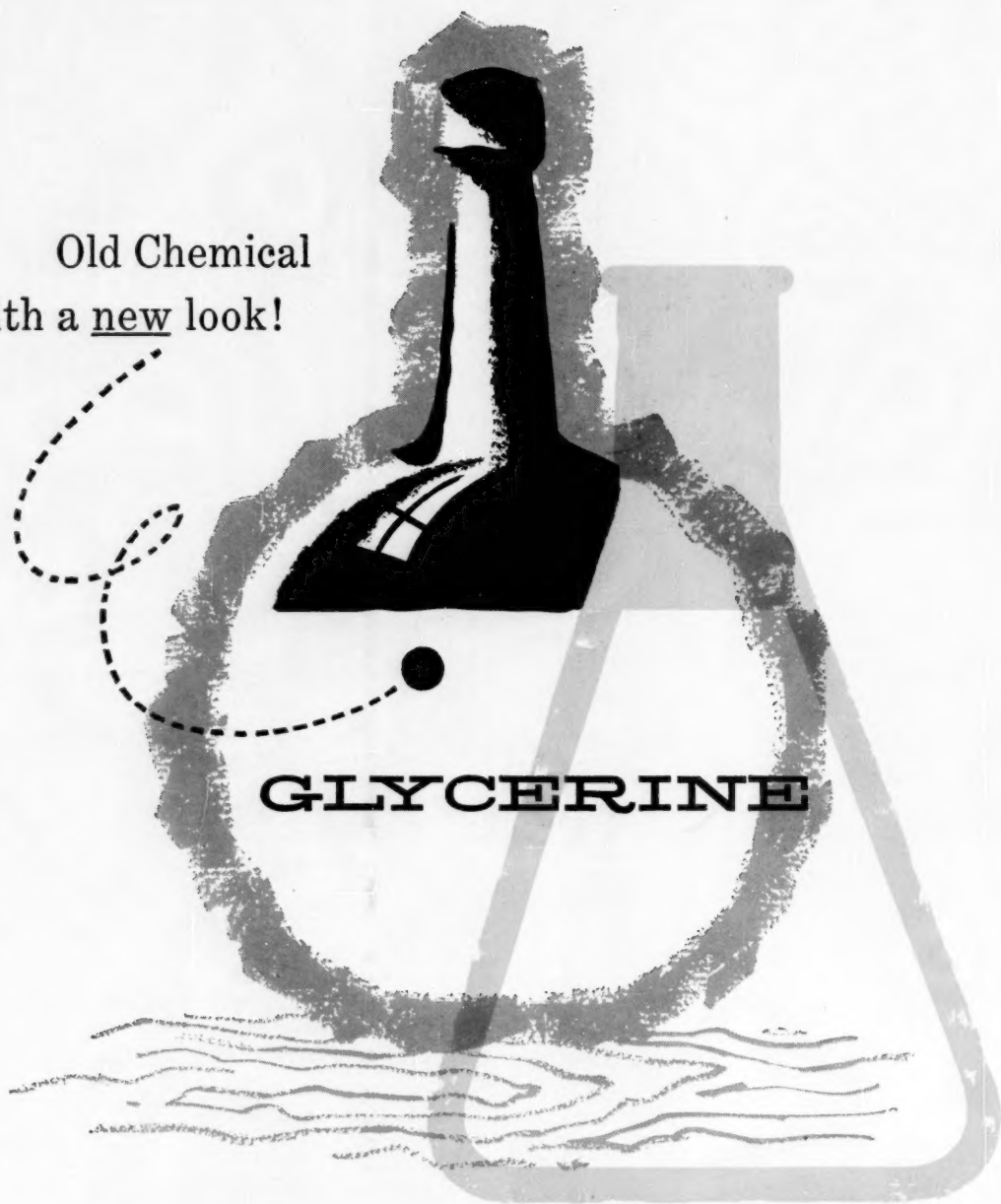
► **St. Joseph Lead's 470-acre farm is good business.** Payoff: good employee, community relations . p. 29

Polyester paradox: everyone knows output is rising—but no one knows exactly how much p. 40

► **Fermentation rivals synthesis** in hot race to launch commercial lysine production p. 52

Worried about dandruff? Remedy makers turn to medics for advertising ammunition p. 56

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Today you can specify glycerine with confidence . . . benefit from its many useful physical and chemical properties.

Shell glycerine meets industry's highest standards of purity, and is unsurpassed in uniformity.

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Photo courtesy Sawyer, Tower, Inc., Coated Fabrics Division, Watertown, Mass.

Clue to covering the bases best

Fast-moving combination in today's protective-covering field is vinyl-coated nylon. Light weight—high strength—flexibility—impermeability—resistance to oils and chemicals—and excellent weatherability—are the reasons. This new type of tarp is finding wide use on everything from small skiffs to truck trailers to baseball fields.

Clue to coating nylon successfully lies not only in selection of right materials, but in their proper application. One leading manufacturer builds up to the correct coating thickness with several light applications, individually fused, under closely controlled conditions. For that reason, precise control of the viscosity of the coating is essential—and that's why he uses PLIOVIC AO.

PLIOVIC AO is vinyl copolymer resin for dispersion. It exhibits high thixotropy for (1) effective control of viscosity, when used as a modifying resin and (2) good "holdout," when used as the base resin.

PLIOVIC AO fuses at low temperatures for longer product life through a shorter heat history. And it tolerates a wide range and high percentage of extender plasticizers giving low compounding costs.

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Your local Monsanto representative can supply you with complete information.

SALES OFFICES... Atlanta, Boston, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, St. Louis, San Francisco.

Chemical Week

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If you use soda ash anywhere west of the Mississippi to the Panhandle, you should use WESTVACO Soda Ash. It is chemically pure, low in iron and insolubles, dusts less, is free-flowing and fast dissolving.

You will find WESTVACO product-quality and fast, dependable service both to your liking.



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AND CHEMICAL
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Week

December 22, 1956

Vol. 79, No. 25

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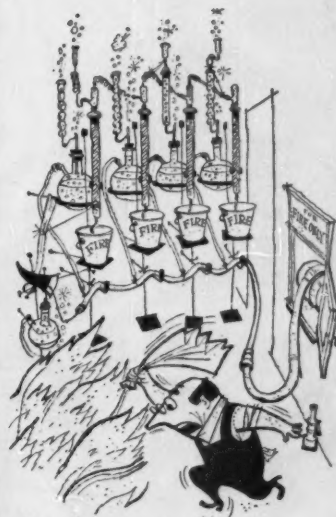
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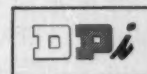
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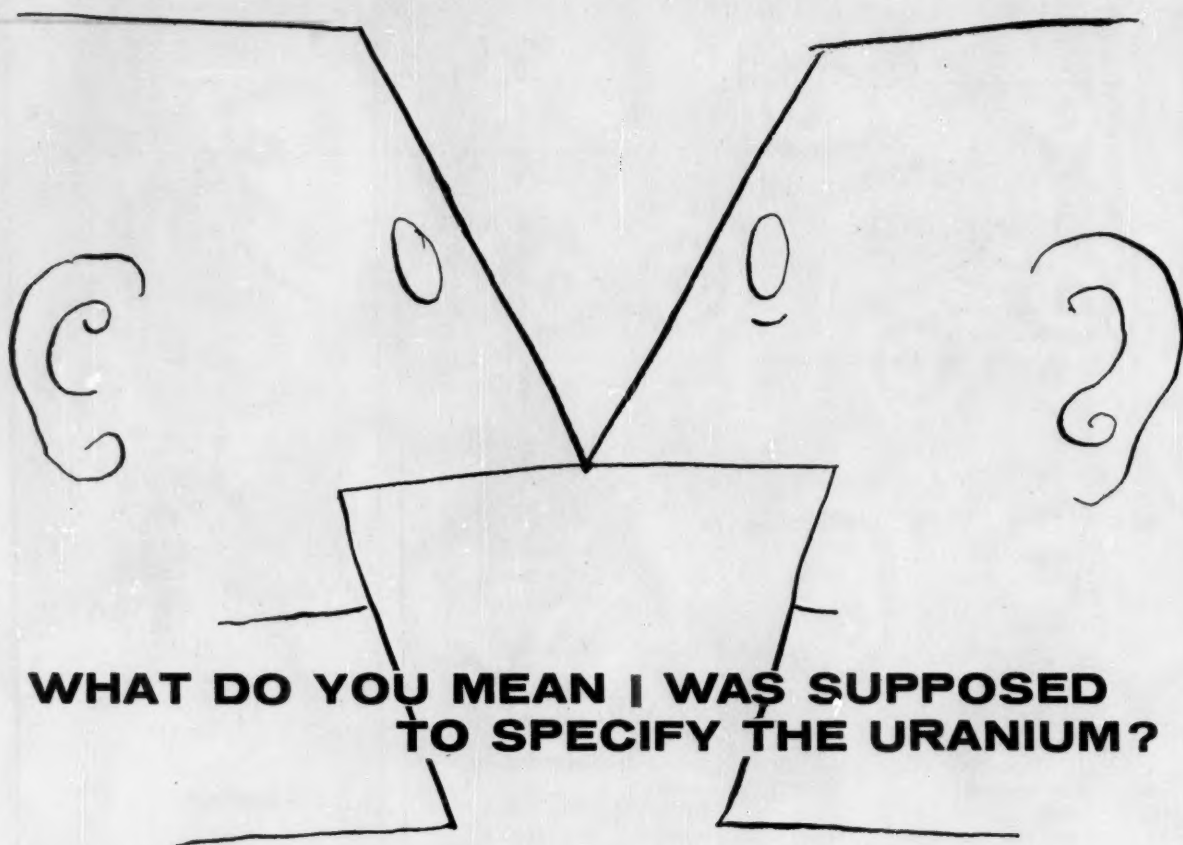
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Sure, when you need an uncommon organic (or an uncommonly pure one) in more-than-test-tube and less-than-tank-car quantities, try Eastman Organic Chemicals Department, *Distillation Products Industries*, Rochester 3, N. Y.



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WHAT DO YOU MEAN I WAS SUPPOSED TO SPECIFY THE URANIUM?

THE CHEMICAL PROCESS INDUSTRIES is a sprawling giant of a market . . . but despite its size and many varied segments (chemical, drug, fertilizer, plastic, rubber, atomic, etc.) . . . all CPI operations must, and *do*, have . . . specific groups of men directly responsible for recommending, specifying and approving the chemicals, raw materials, equipment and services you have to sell.

Now, for the first time, to give the advertising and marketing executive an unbiased and accurately-defined picture of the relative importance of buying influences in the CPI...CHEMICAL ENGINEERING-CHEMICAL WEEK Research recently sponsored an exhaustive study actually conducted inside the plants of 29 leading industrial consumers (Monsanto, Union Carbide and Carbon, Victor Chemical, Wyandotte,

etc.) under the personal direction of the advertising manager of each organization.

The result . . . a 124-page documented report, authenticated by J. K. Lasser & Co., nationally-known auditing firm. The report covers the buying influences for six major CPI product and service categories (chemicals and raw materials, processing equipment, materials of construction, operating supplies, services, etc.) . . . each in turn broken down into specific components.

To receive your personal copy of this authoritative CPI Buying Pattern study, address Director of Research, CHEMICAL ENGINEERING - CHEMICAL WEEK, on company or agency letterhead.

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...for engineers in all functions

CHEMICAL WEEK

...for management in all functions

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CHEMICAL ENGINEERING
AND CHEMICAL WEEK
REPORT ON

Buying Influences and Magazine Preferences Among 29 Leading Chemical Manufacturers

SECTION VI-SERVICES



No matter how you do it, get word to Morton for help in solving any salt problem

The Morton Salt Company offers fast help from salt specialists—at no cost to you. And we mean on any salt problem. Morton can help you, whether it be consultation on the best grade or grades of salt for the best, most economical job in any phase of your particular operation . . . or help in planning a new water-softening system . . . or in modernizing or expanding a brine installation.

We can dispatch a Morton Consulting Engineer in your area to your plant. He's an expert when it comes to solving salt problems, and he's backed by the services of chemists and salt scientists at Morton's ultra-modern salt research laboratory. Best of all, these services don't cost you a cent—and they may well save you hundreds of dollars.

Whatever your salt needs, Morton can fill them promptly and economically. Morton produces many grades of salt for use by the chemical industry. Only

Morton has nine strategically located plants to serve you. And only Morton can offer fast delivery from a bag to a trainload, at favorable prices and freight, anywhere in the country.

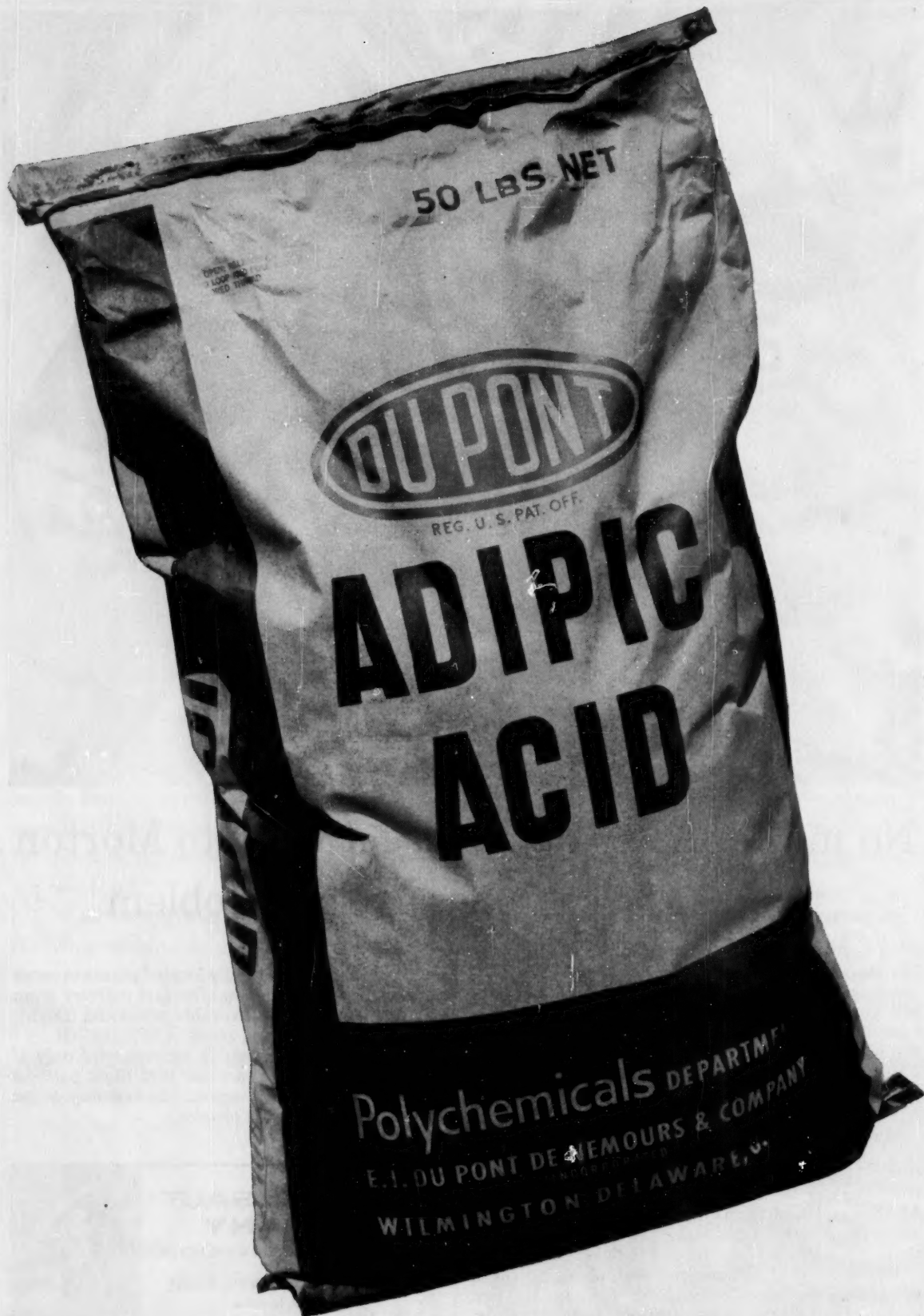
Sending a carrier pigeon is recommended only if you happen to have one familiar with flight patterns to our communications window. The best way to get help, of course, is to write or wire.

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. CW-12, 120 So. La Salle Street,
Chicago 3, Illinois





Du Pont chemical experience is the reason...

You get unvarying high quality in every bag of Du Pont Adipic Acid

Du Pont, the chemical industry's first producer of adipic acid, maintains its high-quality standards with the latest manufacturing processes and production techniques.

You benefit from Du Pont's 20 years of experience as a producer of high-quality adipic acid. For shipment after shipment, you can depend on a product that meets your most exacting specifications . . . whose purity and uniformity are always the same. This means you can count on a smoother-running operation . . . with costly production halts cut to a minimum.

What's more, uses for versatile Du Pont Adipic Acid continue to grow. In addition to applications in many phases of petroleum and chemical manufacture, Du Pont Adipic Acid is widely used in the production of high-quality adipate plasticizers, polyester resins, and polyurethane foams.

If adipic acid is an ingredient in your process, consider the many advantages you gain from Du Pont's experience in producing this basic chemical. Remember, too, that there is a strategically located stock point near your plant ready to ship Du Pont Adipic Acid (packaged in 50-lb. multi-ply paper bags) on receipt of your order. For more information, call or write our nearest district office . . . you will receive a prompt response.

POLYCHEMICALS DEPT. DISTRICT OFFICES

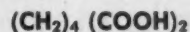
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350 Fifth Avenue
Tel: Longacre 3-6400

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Tel: Uni. 4-1963

Chicago 30, Illinois
7250 N. Cicero Ave., Lincolnwood
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2930 East 44th Street
Tel: Cumberland 3-2761

FORMULA:



TYPICAL ANALYSIS:

Adipic Acid	99.8%
Ash	5 p.p.m.
Iron	0.5 p.p.m.
Water	0.05%
Color, A.P.H.A.	6

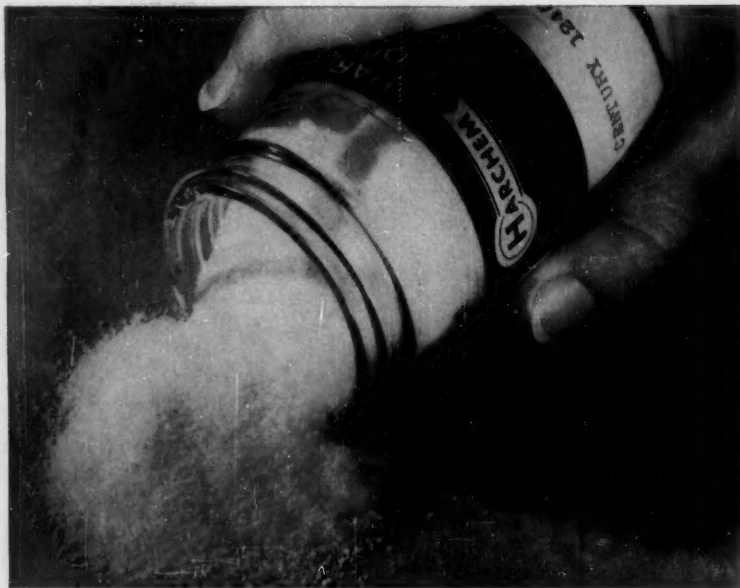


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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

POLYCHEMICALS DEPARTMENT

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CENTURY BRAND *beaded fatty acids and glycerides are dust-free*

Customers report that they prefer to use Century Brand *beaded* fatty acids and glycerides. Beads do not break during handling or shipment to create nuisance dust that can cause employee discomfort and plant clean-up problems.

Century Brand fatty acids are made in every grade required by industry. The quality of each grade is carefully maintained to assure that no customer will receive off-grade materials. Harchem Division can supply Century Brand fatty acids in any desired quantities at competitive prices.

Ask for a free sample of the Century Brand *beaded* fatty acids suited for your application. Your requests will be answered promptly.



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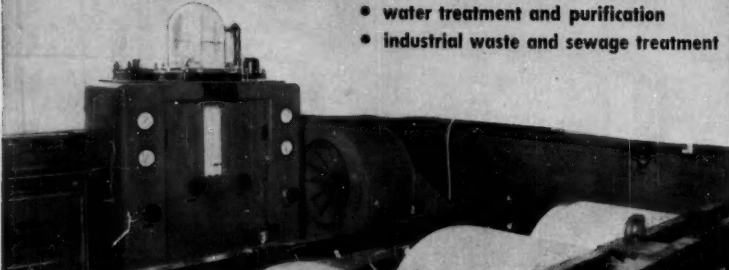
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25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

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• water treatment and purification
• industrial waste and sewage treatment



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CD-61

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

OPINION

Professional Viewpoint

TO THE EDITOR: The article "Vying for Solder's Jobs" (Nov. 24) was most interesting to us, for if the total estimated business applies to the firms listed in the article, then we are undoubtedly one of the top producers—and possibly the only producer of all three principal types (vinyl, polyester and epoxy).

The article seems to us to be an excellent delineation, but not completely accurate from the professional user's viewpoint. The oldest successful "cold solder," from the professional user's viewpoint, is vinyl-based—not cellulose-based—and has been successfully marketed for approximately 11 years. . . . We know that it replaces many, many tons of tin/lead solder each month. . . .

It looks at this time as though the big future is with the epoxy material. We also feel that the price barrier has been exaggerated; the product costs the shop only about 75%, or less, of the cost of the tin/lead solder it replaces, and is much more versatile, convenient and safe.

C. O. SPILLMAN
Sales Manager
Associated Producers Inc.
Detroit

Past Not Sufficient

TO THE EDITOR: I noticed the article (Nov. 3) for which I have given you a few ideas . . .

I wish to thank you for the comments you made about the work of our research group at Michigan State University. My opinion is that the article was quite accurate, although it seems to me that relatively recent studies, like the ones of L. Ferenczy,

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to:
H. C. E. Johnson, Chemical
Week, 330 W. 42nd St., New
York 36, N.Y.

L-LYSINE

PRODUCT NEWS FROM



(monohydrochloride)

with NO D-isomer

**produced by fermentation...
now available in quantity**

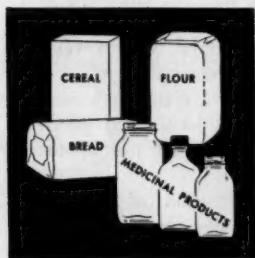
• Through its leadership in fermentation chemistry, Pfizer now offers pharmaceutical and food manufacturers the essential nutrient L-lysine in practical commercial quantities. A unique fermentation process assures that only the biologically active L-isomer is produced.

In the average human diet lysine is more deficient than any of the other eight essential amino acids.

Volume production of Pfizer L-lysine means you can offer an important new health plus in your products. In medicinal products Pfizer L-lysine should have special significance in meeting the nutritional needs of children, pregnant women, older people and those who are recovering from illness. In cereal food products, particularly wheat products,* Pfizer L-lysine can improve the amino acid balance to a level comparable to that of high quality animal proteins.

Write us if you would like further information about Pfizer L-lysine, and a free sample. Pfizer Technical Service men can also help you in taking advantage of this important new development.

*Before adding L-lysine to food products, manufacturers should check Federal and State standards of identity.



*Manufacturing Chemists
for over 100 years.*



CHAS. PFIZER & CO., INC.

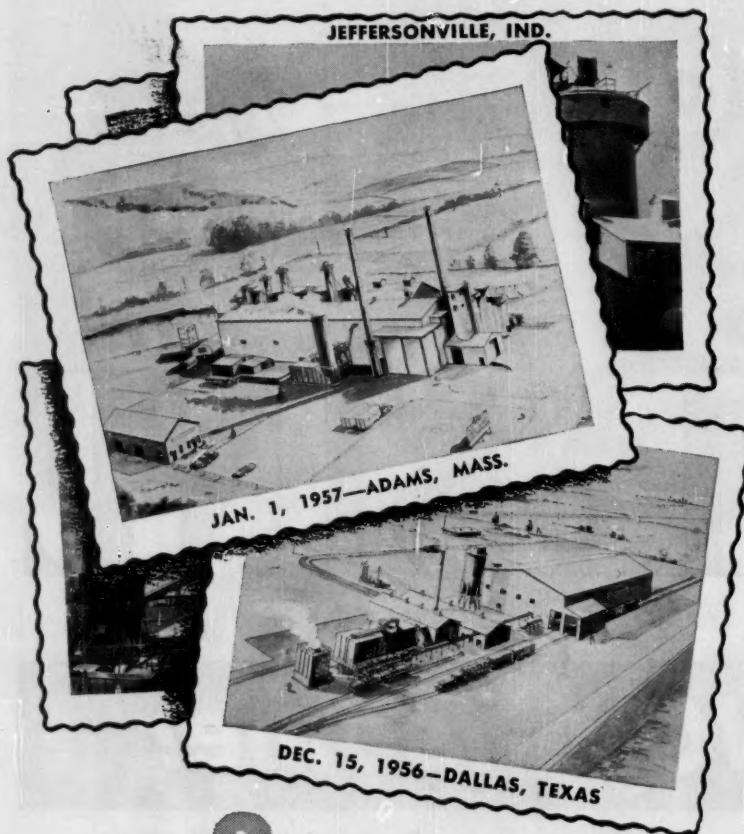
Chemical Sales Division

630 Flushing Ave., Brooklyn 6, N. Y.

Branch Offices: Chicago, Ill.;

San Francisco, Calif.; Vernon, Calif.;

Atlanta, Ga.; Dallas, Texas



SHEA'S 2 NEW SODIUM PHOSPHATE PLANTS give you faster, better service!

Shea sodium phosphate production has more than doubled with new plants now in operation in Adams, Massachusetts and Dallas, Texas. These new plants combined with production at Jeffersonville, Indiana, and supported by increased phosphorus production at Columbia, Tennessee assure phosphate users of fast service—and equally important—multiple sources of supply in any emergency.

Elemental Phosphorus
Sodium Tripolyphosphate
Tetrasodium Pyrophosphate
Disodium Phosphate
Trisodium Phosphate
Sodium Hexametaphosphate
Phosphoric Acid, Food Grade
Phosphate Feed Solution

If you use phosphates—both high and low bulk density—count on Shea for products of unquestioned quality . . . in unfailing supply.



CHEMICAL CORPORATION

Jeffersonville, Indiana • New York 16, New York

OPINION

were mentioned, while some of the pioneering work was omitted. I also believe that too little attention was given to the fact I had expressed . . . "The real promise, however, lies less in the fact that such rediscoveries have been made and will be made than in the knowledge that this field is still wide open. It would be utterly erroneous to assume that all potential drugs from natural sources are contained in the present store of folk remedies. Natural science, as all other human endeavor, is in continuous flux, and those who work in this field cannot remain satisfied to draw from experiences accumulated in the past. They must and will develop new ideas, look for new avenues into unsearched territory."

E. H. LUCAS

Michigan State University
College of Agriculture
East Lansing, Mich.

Praise for Pesticides

TO THE EDITOR: . . . In the course of our work as consultants on various research and development projects, we have found your publication to be a valuable source of precise and up-to-date information. In particular, we would like to commend you on the current series on insecticides.

JOSEPH B. JEROME

John A. Hinckley and
Associates, Inc.
Chicago

Motomco's Pival

TO THE EDITOR: YOUR CW REPORT [on] pesticides . . . represents a formidable editorial assignment and, as inferred in the footnote to Part One, is likely to contain some inaccuracies. We should like to correct one inaccuracy in respect to Pival, a registered trademark of Motomco, Inc.

Contrary to the table on page 88 . . . Motomco, Inc., is not only the leading producer but also the exclusive producer of this . . . rodenticide. We produce Pival together with a related water-soluble product Pivalyn . . . at Clark, N.J., and are the exclusive licensee of patents issued and pending covering the pesticidal use of these materials.

In our distribution of Pival and Pivalyn to the pest control industry, we are represented by a group of 12

from seed sticker to shampoo . . .

DOW



ALL THESE PRODUCTS ARE MADE BETTER WITH METHOCEL

DOW METHYLCELLULOSE
has literally hundreds of uses in a
dozen different industries!

There seems to be no limit to the number of applications for Methocel® (Dow methylcellulose). Its use is ever increasing, and for good reason.

Being a synthetic, the quality of this water-soluble gum never varies. And nine viscosity types and three grades offer a selection greater than any other gum—natural or

synthetic. This broad range simplifies development and control work; has established Methocel as a dependable suspending agent, thickener and film former . . . as well as a dispersing agent, binder and emulsion stabilizer.

The fact that Methocel is an important ingredient in the manufacture of hundreds of products—from seed sticker, paint, paper and pharmaceuticals to shampoo—indicates its versatility and suggests that "Methocel may improve your product and bring economies!"

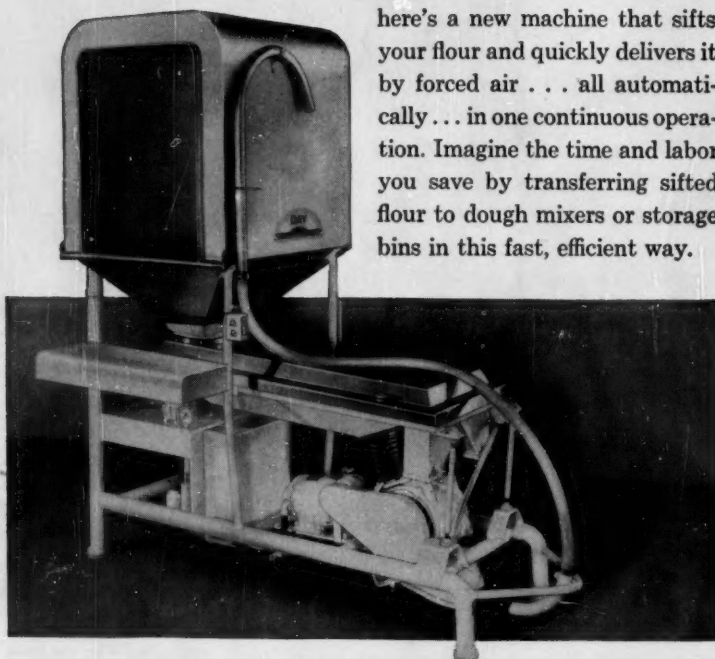
Today, write for a sample and indicate the proposed area of use so that we may send the ideal viscosity. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. ME 811A-2.

you can depend on DOW CHEMICALS

DOW

operation
"airmatic"
with the

DAY RO-BALL AIRMATIC...



here's a new machine that sifts your flour and quickly delivers it by forced air . . . all automatically . . . in one continuous operation. Imagine the time and labor you save by transferring sifted flour to dough mixers or storage bins in this fast, efficient way.

Flour is sifted in the popular Ro-Ball Sifter (one component of the Ro-Ball Airmatic) and is then blown to another point by a low-pressure air system, which requires only 4-12 psi and 10 cfm to convey 100 pounds of flour per minute. No objectionable dusting. Low air consumption permits use of your existing air lines. Sanitary construction throughout. For complete information write for Specification Sheet B-105RA.



in baking equipment



means longer life span

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Quality equipment for baking, paint and varnish, printing ink, chemical, rubber, pharmaceutical, cosmetics, paper and pulp, explosives, food, ceramics, candy, soap, sugar and milk products.

Mexico: T. de la Pena e Hijos, S.A., Nazas 45-A, Mexico 5—D.F.

OPINION

distributors, including our good friends and customers B.&G. Co. of Philadelphia. . . .

The inclusion of Ringwood as a producer of Pival is merely a matter of outdated rather than incorrect information. Prior to the completion of our plant here at Clark, Pival was produced for us on a contract basis by Ringwood Chemical Co. . . . They, incidentally, did an outstanding job for us, and our move away from them to our own plant resulted only from a policy decision to establish our own facilities against a rapidly expanding market for these new rodenticidal materials.

We feel that the basic concept of this CW REPORT is splendid, and that in its completed form it will become a valuable reference to our industry. . . .

W. H. DOLBEN
President
Motomco, Inc.
Clark, N.J.

MEETINGS

American Assn. for the Advancement of Science, 123rd meeting, Statler Hotel, New York, Dec. 26-31.

Society of Plastics Engineers, annual technical conference. Sheraton-Jefferson Hotel, St. Louis, Mo., Jan. 16-18.

Assn. of American Soap and Glycerine Producers, annual convention, Waldorf-Astoria Hotel, New York, Jan. 23-25.

Texas A&M College, 12th annual symposium on instrumentation for the process industries, College Station, Tex., Jan. 23-25.

Chemical Buyers' Group—National Assn. of Purchasing Agents, midwinter meetings, Western division, Congress Hotel, Chicago, Jan. 24; Eastern meeting, Hotel Commodore, Jan. 29.

Society of the Plastics Industry, Inc., 12th annual Reinforced Plastics Division Conference, Edgewater Beach Hotel, Chicago, Feb. 5-7.

American Institute of Mining, Metallurgical and Petroleum Engineers, Inc., Engineers Joint Council, Statler Hotel, New York, Jan. 17-18; annual meeting, Hotels Roosevelt and Jung, New Orleans, Feb. 24-28.

National Agricultural Chemicals Assn., spring meeting, Fairmont Hotel, San Francisco, March 6-8.

Nuclear Congress International Atomic Exposition, Convention Hall, Philadelphia, March 11-15.

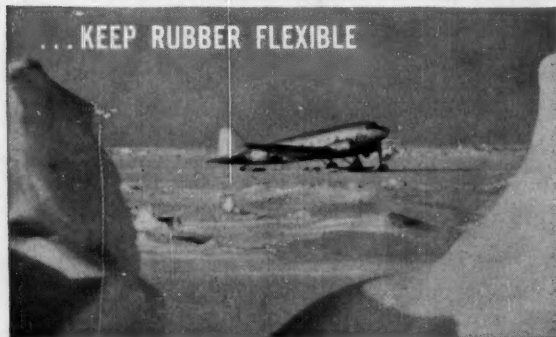
HOW **HERCULES** HELPS...



... RAISE HEALTHY POULTRY

GETTING THE MOST FROM FEEDS—Dalpac*, Hercules di-tert-butyl-para-cresol, is an antioxidant for livestock and poultry feeds. Also known as BHT, this chemical protects vital nutrients and assists in the full utilization of important vitamins. By preserving vitamins A and E and other essential nutrients during processing and storage of feeds, Dalpac prevents poultry disease, promotes healthy growth.

*Hercules trademark



... KEEP RUBBER FLEXIBLE

LOW-TEMPERATURE PERFORMANCE—For seals, hose, de-icing boots, and other parts on this plane, rubber vulcanized with Di-cup® maintains its flexibility at lower temperatures than is possible with sulfur-curing systems. Di-cup, Hercules dicumyl peroxide, is a versatile curing agent for many polymers.



... SANTA CLAUS

CHRISTMAS ORNAMENTS may fall off the tree and break, but these new ones will not shatter, leaving jagged pieces that could cause injury. That's because they are enveloped in a tough, clear coating containing Hercules® nitrocellulose. (Ornaments made by Coby Glass Products Co., Lonsdale, R. I.)



056-10

HERCULES POWDER COMPANY

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 EXPLOSIVES, AND OTHER CHEMICAL PROCESSING MATERIALS.

HERCULES

CHEMICAL MATERIALS FOR INDUSTRY

Air Reduction's New Vinyl Acetate Plant On Stream

**Engineered and
constructed by Lummus,
the \$3,000,000 facility
with capacity of
30 million pounds has
smooth start-up;
makes 99.99+ %
pure product.**

The new \$3,000,000 installation for the production of vinyl acetate monomer has recently gone on stream at Calvert City, Kentucky. Engineered and constructed by The Lummus Company for Air Reduction Chemical Company, a Division of Air Reduction Company, Inc., the unit started up smoothly and was immediately making 99.99+ % pure product—even better than specification.

Designed for flexible operation, the 30,000,000 pound per year unit has proved operable in a wide range from $\frac{1}{4}$ of design capacity to over design capacity.

The plant is of outdoor construction throughout, with process control centralized in a modern control room employing electronic devices. It is located adjacent to Airco's National Carbide Divi-

sion acetylene generating plant, from which it receives its principal raw material—acetylene. This is converted into vinyl acetate monomer which is, in turn, a basic material for adhesives, latex paints and textile finishes.

Airco executives who attended the formal opening commended the ability and dispatch with which the Lummus organization carried through the project from inception to completion.

The success of this project is one more indication of Lummus' ability to handle exacting installations

for the chemical process industries.

You may find it profitable to look to Lummus for your next plant project.

THE LUMMUS COMPANY,
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17, N. Y. **Engineering and Sales
Offices:** New York, Houston,
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Chicago, Indiana. **Engineering De-
velopment Center:** Newark, N. J.



Acetylene is purified in unit at left. In larger unit (center), preheated acetylene and acetic acid vapors react to form impure monomer. Distillation towers in this unit purify monomer and recover unreacted acetic acid.

Business Newsletter

CHEMICAL WEEK

December 22, 1956

Still more ethylene is on the way.

Humble Oil & Refining Co. will begin construction early next year of an 80-million-lbs./year ethylene unit at Baytown, Tex. The unit, part of Humble's petrochemical expansion program, is due in operation about the middle of 1958. It will recover ethylene from refinery gases via a low temperature fractionation process.

Add Humble's output to the even larger output of Petroleum Chemicals, Inc.'s ethylene plant in Lake Charles, La., Jefferson Chemical's Port Neches, Tex., expansion, and other building units, and you get an index of the boom in new ethylene capacity. The Humble facilities, incidentally, are designed to be doubled in capacity by later equipment additions.

Just where all the ethylene will go isn't yet clear. Du Pont's plant at Orange, Tex., will likely get a substantial share of the area's output. But both Humble and PCI have plans to use their captive ethylene to make ethylene oxide. PCI plans to build such a plant near Lake Charles; Humble may build near Baytown.

Too, Rohm & Haas's well known interest in an ethylene oxide plant may well crystallize, via the construction of a plant in the region.

•
W. R. Grace's plans for Memphis are becoming somewhat clearer (*CW Business Newsletter*, Dec. 15). Primary product will be acetylene; This could well go into acrylonitrile—or possibly other acrylic materials.

•
Don't look for a land boom in New Jersey, but do expect greatly increased interest in 10-20 sq. miles of land in south-central Jersey where significant deposits of ilmenite sands have been discovered. Meredith Johnson, state geologist, says that the supply of the titanium raw material, which is on both public and private lands, is "substantial."

Several firms with a prime interest in ilmenite as a source of titanium dioxide pigments have already begun exploring the region—along the bed of the Millstone River.

•
Are chemical research laboratories undesirable? In two towns, they seem to be. Like Escambia Chemical Corp., which met opposition from the citizenry in Wilton, Conn., when it proposed a laboratory there (*CW*, Nov. 24, p. 98), Olin Mathieson now faces a strong "anti" feeling among the residents of Niagara Falls, N. Y., where it hopes to build a research unit.

Business Newsletter

(Continued)

Olin Mathieson got a particularly bad break. Just a few days before the zoning board of appeals held a meeting to consider a necessary zoning change, there was a fatal explosion at the firm's pilot plant there. And although the firm makes it plain that only physical testing is to be done and that no "explosive, dangerous or hazardous undertakings" are planned, objections from residents caused the hearings to be postponed for two weeks.

•
Recent proposals on air pollution control may well affect chemical firms in the East and in Midwestern areas.

A measure approved in principle by the Metropolitan Regional Conference, which covers the New York City area, is the most immediately far-reaching—it suggests that New York, New Jersey and Connecticut air pollution control organizations be given the power to close industries whose discharges may cause dangerous smog in times of temperature inversion—when a warm air layer blankets a layer of cooler surface air. For this proposal to take effect, the legislature of the states involved would, of course, have to enact new legislation.

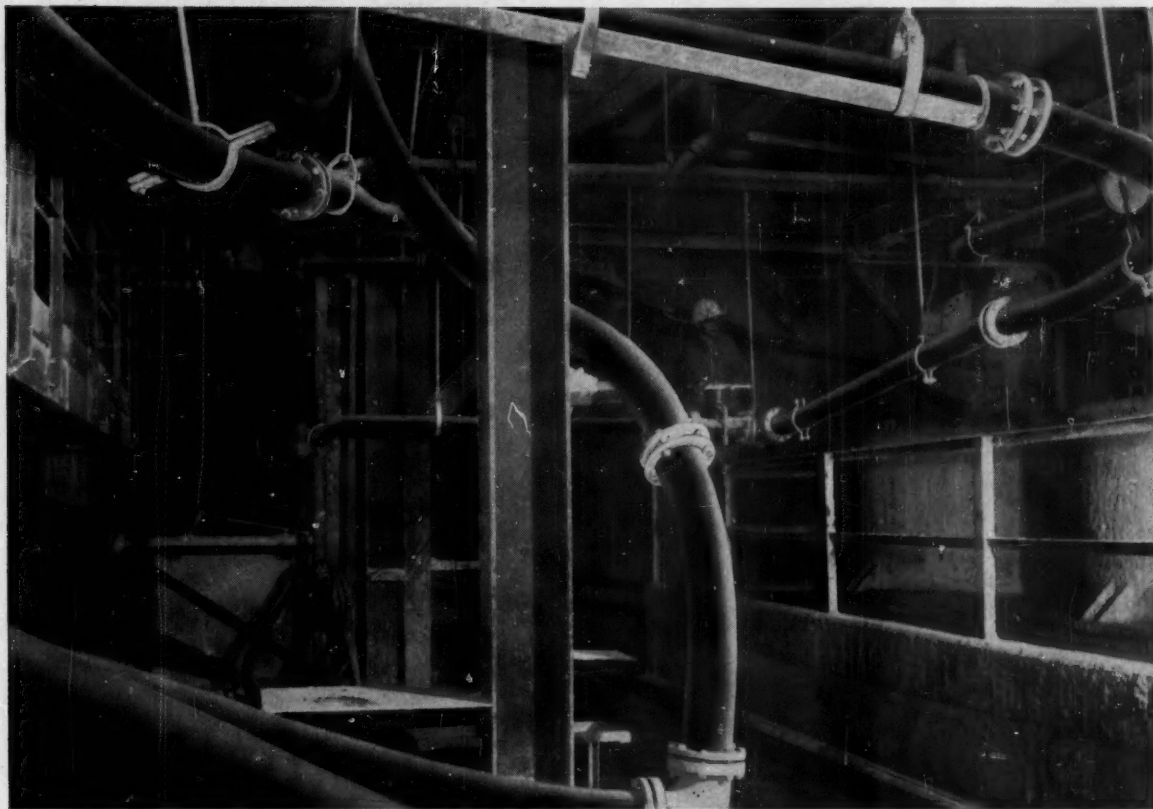
A less strenuous plan for Chicago was put forward at a meeting there last week when Armour Research Foundation's Morris Fisher and Samuel Radner proposed a pollution control plan notable for its flexibility. Some highlights:

- Rules and regulations should be replaced by a code of recommended practices, which would serve as a guide, rather than providing binding provisions.
- Plants emitting pollutants should be operated by licensed personnel—with the city's Dept. of Air Pollution Control given the authority to revoke licenses.
- Three classes of plants, with three different limits on visible emissions, would be established.

The Chicago group did not cover the question of whether the control organization might force a plant to halt operations when it felt that public health was at stake.

•
Caution was urged in the use of 8-MOP (8-methoxy-psoralen for the painless acquisition of a suntan. Dr. Norman B. Kanof, of New York University, said the chemical might indirectly induce skin cancer in susceptible persons. Reason: 8-MOP provides a tan for some persons whose skin might otherwise burn when exposed to sunlight. But exposure, if it's overdone, could possibly cause cancer, Kanof says. The pills—though available only on prescription, and used primarily for treatment of vitiligo—have been in great demand by those hoping to acquire a fast tan on a brief vacation.

"PUMPING IS SIMPLER AND PRODUCTION BETTER!..."



A production official of a phosphate chemical plant tells why he uses U. S. Pilot Flexible Pipe

"We change our production frequently, and the job is far simpler with U. S. Pilot® Flexible Pipe," continues the official. "This flexible hose can be strung anywhere it's needed. With metal pipes you have sharp corners. The flow tends to clog up at the first one, and then you've got a mess. But the gentle curving lines of U. S. Pilot Flexible Pipe make pumping simpler, and production better."

This performance of U. S. Pilot Flexible Pipe in a Florida Phosphate plant is characteristic. For handling corrosive chemicals and the abrasive action of transporting solids suspended in water, U. S. Pilot Flexible Pipe is highly economical. Because of its flexibility, it guards

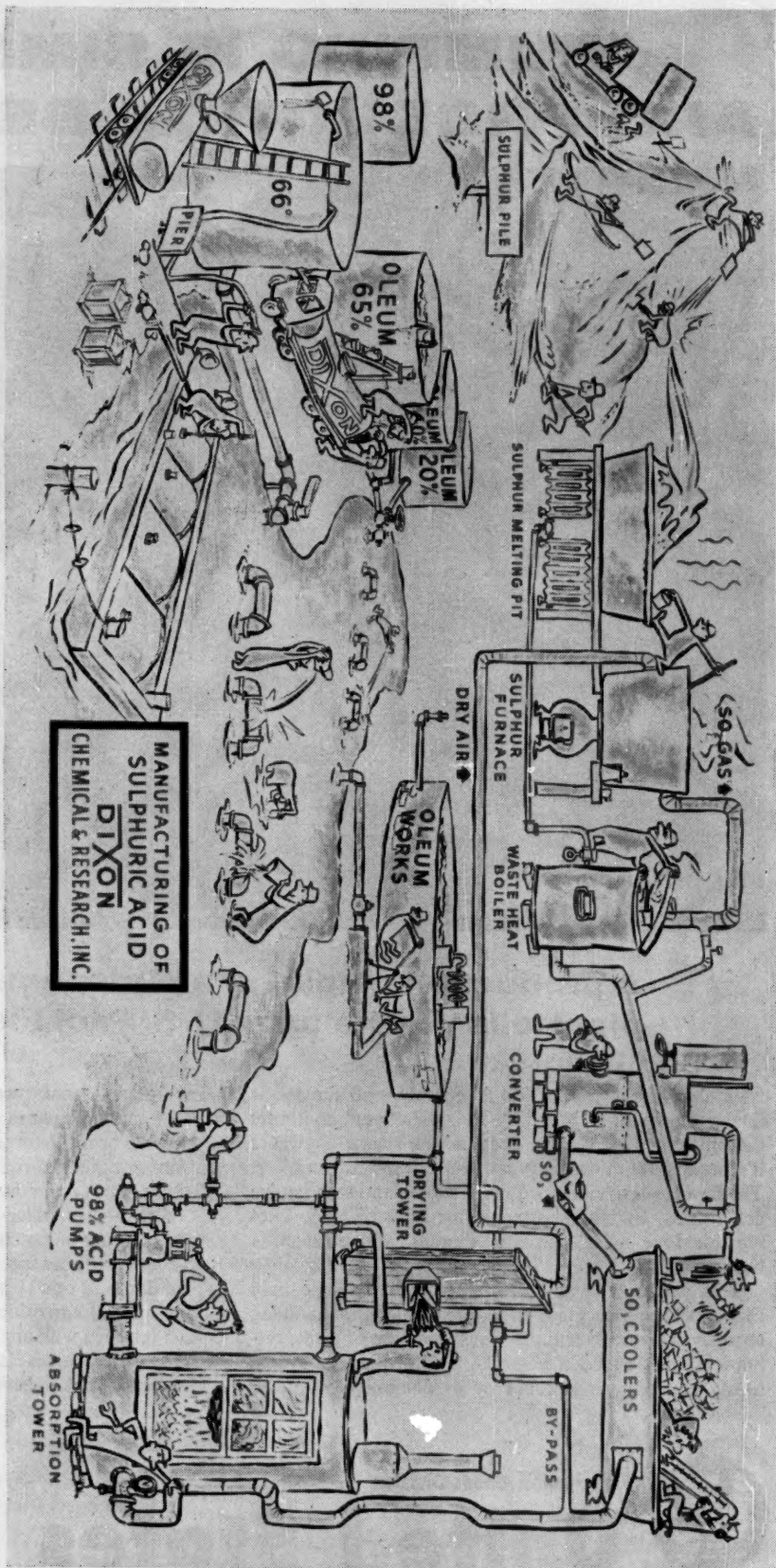
equipment from mechanical strains due to vibration, contraction, expansion and water-hammer. It serves as a cushion or insulator in eliminating the passage of shocks from one piece of equipment to another. Light in weight, easily and quickly installed.

The plant's officials have found that U. S. Rubber products are unmatched in facilitating production and in reducing maintenance and equipment charges. They have standardized on "U. S." products. It will pay you to take any and all corrosion problems to a "U. S." specialist. Get in touch with any of our 27 District Sales Offices, or write United States Rubber Company, Mechanical Goods Division, Rockefeller Center, New York 20, N. Y.



Mechanical Goods Division

United States Rubber



Reproductions of this flow chart suitable for framing are available on request.

the new look in sulphuric acid . . . now revealed*

From Boston to Baltimore—

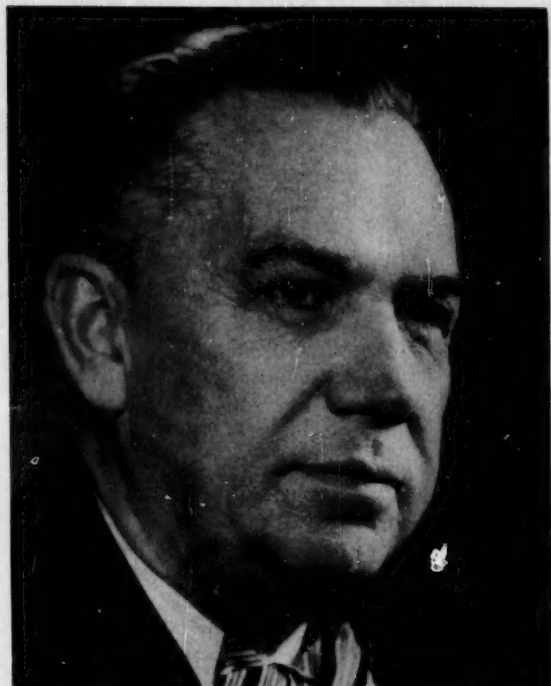
Dixon serves the Eastern Seaboard

DIXON

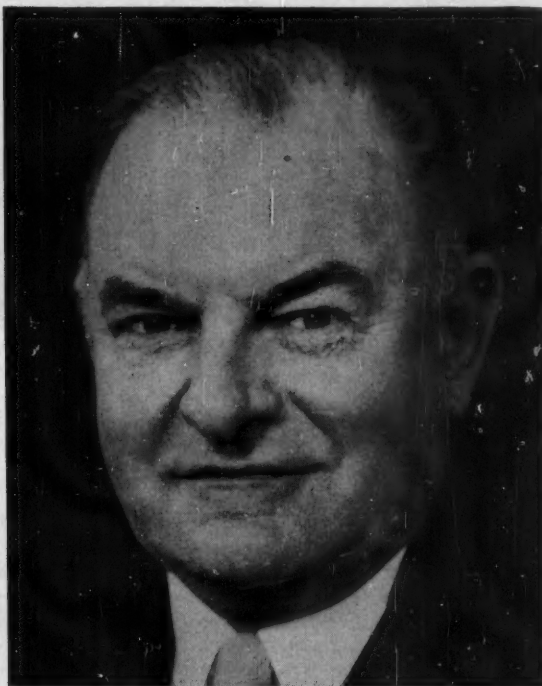
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*pat. pending



KENNECOTT'S COX: He brings a market, fabrication know-how, and slag for the mill.



ALLIED'S EMMERICH: He will contribute research know-how and a continuous process.

Titanium Bandwagon Picks Up New Riders

Early in 1957, Allied Chemical and Kennecott Copper will join forces to form a jointly owned company that will build a \$40-million plant to produce titanium sponge by what Allied calls a "truly continuous process."

What the projected company's process is, neither parent is saying, except that it involves the "continuing use of sodium to effect the reduction of titanium tetrachloride to titanium sponge." Moreover, the process, in development since 1950 by Allied's Solvay Process Division and the Central Research Laboratories, includes an improved method of making tetrachloride from the type of slag produced by Quebec Iron and Titanium Corp. at Sorel, Quebec.

As yet, the 50-50 owned subsidiary has not been formed, though both firms have been negotiating continu-

ously for the past six weeks. Too, Allied reports that no plant site has been chosen, although "three or four are under consideration." Possible locations: Syracuse, where Allied has plentiful supplies of chlorine, or the Buffalo-Niagara Falls section, where Kennecott has options on a site that would afford easy access to sodium and slag from Sorel. Such a location, too, would allow integrated production of sheet, tube, and other fabricated forms of titanium.

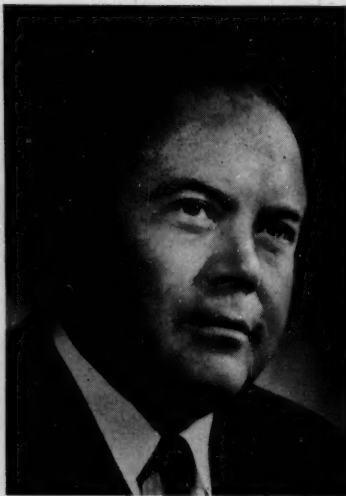
Process Problems: To many titanium producers, the problem of getting workable crystals of the material from the reduction operation has been a major stumbling block. Conversion from batch to an economical continuous process would represent a large step forward in titanium technology. Too, it would accentuate the down-

ward trend of prices for titanium. In 1954, titanium sponge sold for \$5/lb.; its present price: \$2.75/lb.

To Allied, the venture will make accessible the broad metal marketing know-how and facilities of Kennecott plus the company's experience with metal fabrication, and with sales to other fabricators.

On the other side of the ledger, Kennecott will benefit from Allied's metallurgical research and technical background on getting better recovery yields in addition to the basic process development involved.

Plans for '58: Though formal plans aren't yet complete, Kennecott President Charles Cox and Allied President Fred Emmerich expect the new plant to begin production of tetrachloride, sponge and billets during the latter part of 1958.



HOOKE'S MURRAY, REYNOLDS' REYNOLDS: Worries grow with . . .

Power and Politics

Electric power problems are worrying chemical processors again. In Niagara Falls, a dozen chemical process companies are protesting against proposed current changes; in the Southwest, Reynolds Metals' rates on its government-supplied power may be upped.

Chemical process companies are in the forefront of the growing battle over electric power along the Niagara frontier. The protesting firms* have asked the Federal Power Commission for permission to intervene in hearings on a proposal by Niagara Mohawk Power Co. to convert the part of its system that serves them from 25-cycle to 60-cycle current.

Power Committee: The companies have formed the Basic Industries Power Committee and are led by Hooker Electrochemical's board chairman, R. Lindley Murray. The problems the committee faces stem largely from rebuilding the destroyed Schoellkopf power station (*CW*, Sept. 1, p. 23) to supply 60-cycle rather than 25-cycle current (*CW Business Newsletter*, Sept. 15).

Local industries claim that to convert their plants to 60-cycle from 25-cycle current would be a colossal and costly undertaking. The matter is

further complicated because the New York State Power Authority seeks to build a new electric plant in the area. FPC has denied the bid, pointing out that jurisdiction over the matter, even though unexercised, is in the hands of Congress under terms of a 1950 treaty between the U.S. and Canada. This FPC ruling is almost certain to be taken to court.

The Southwest: Reynolds Metals Co. will make a strong protest to FPC over allegations that its contract with the Southwestern Power Commission violates the Flood Control Act of 1944.

Crux of the problem is a 30-year contract Reynolds negotiated with the Dept. of Interior in 1952. Unlike the private utilities that supply the vast majority of SPA power users, Reynolds has terms not subject to periodic revision under its direct-supply contract.

As a consequence, Interior officials say these terms are in violation of the Flood Control Act, which requires that rate schedules be drawn with regard to recovery of operating costs, including the amortization of the capital investment allocated to power over a reasonable period of years. Interior Secy. Fred Seaton says that department studies indicate that the Reynolds contract rate fails to meet these requirements. Hearings slated for last week have been postponed indefinitely.

New Guides on Size

Chemical firms seeking government procurement contracts will be guided by a new set of rules defining business-size.

Basically, new rules just issued by the government's Small Business Administration soften the present rigid standards by which government procurement officers distinguish "small" from "big" business for matters involving government procurement. Until now, manufacturers have been classed in one or the other group strictly by the number of workers in their employ. They've generally been classified "big" business if employment—including that of affiliates and subsidiary firms—was 500 or more, and "small" if there were fewer than 500 employees.

The distinction between big and small business is of critical importance in the procurement field because many government contracts are set aside specifically to be awarded to firms that SBA classes as small business. Congress amended the law more than two years ago to allow firms in the 500-and-up class to apply for small-business certification if they are small in comparison with others in their industry, but few firms have applied for such certification.

New Push Ahead: SBA Administrator Wendell Barnes has promised to promote wider use of the certification procedure through trade association and SBA publicity machinery. The new policy will mean that more firms in the 500-plus group will be made eligible for small-business contracts. SBA officials expect "a heavy influx" of certification requests from these firms.

In further revisions of past practices, SBA tightened rules to make certain that procurement contracts earmarked for small business don't end up on the books of larger firms. Effective Jan. 1, manufacturers with fewer than 500 employees will lose their small-business certification if they hold a dominant position in their industry or product line. And, SBA is closing—on the same date—a loophole widely used by larger producers to win contracts set aside for small firms by bidding through brokers and other small nonmanufacturers. After Jan. 1, nonmanufacturers bidding for such contracts must certify that they will supply material produced by small businesses.

*Members: Hooker, Certain-teed Products, Carborundum, General Abrasive, Great Lakes Carbon, Speer Carbon, International Paper, Kimberly-Clark, Olin Mathieson, Pittsburgh Metallurgical, Vanadium Corp. and National Lead.

Storm Signals at Baltimore

Stormy is the word for the industrial climate in Baltimore, Md. That city's government has just approved a new property tax that's bringing vigorous protests from more than 300 manufacturers (CW, Dec. 8, p. 23).

At least two companies will close down their Baltimore plants, and several others are threatening such action if the law remains unmitigated. Moreover, the new levy will touch off what could become the hottest court battles in the city's history.

The new tax, approved by the city council and signed into law by Baltimore's Mayor Thomas D'Alesandro, Jr., levies taxes on a company's inventories, machinery and equipment—items that were tax-exempt under old regulations.

Both the mayor and city councilmen are at least partly motivated by sound politics. Confronted with a need for \$13 million to meet the city's increased budget requirements, and to avoid boosting an already high real estate tax rate, they decided to shift some of the new burden to manufacturers. If the new levy had not gone through, the city's tax rate, now \$3.13 per \$100 of assessed valuation, would go up to \$3.34. But now, with local industry subject to new taxes, it can be cut to \$2.88 next year—a sure vote-getter for the present city government.

D'Alesandro argues that an exemption on property tax isn't granted to industries in many other cities and that Baltimore can no longer afford such a "subsidy" for its manufacturers. City councilmen say that merchants pay taxes on their inventories and equipment, and that manufacturers should do the same.

All Out Against: But local industry is going all-out to keep the old tax structure. Between 300 and 400 manufacturers in the area have banded together, and are this week filing suit in the Baltimore circuit court to try to get the new law declared unconstitutional.

While legal red tape could hold up hearings for several months, lawyers for the manufacturers claim the case will be expedited, and that hearings should get under way by the latter part of January. Two arguments sure to be used by the manufacturers:

- The city's over-all tax picture

must be considered before it can be shown that manufacturers have enjoyed a special status.

- The city can not legally collect the tax in 1957, since the deadline for filing assessment valuations has already passed.

Long Campaign: Industry in Baltimore, which includes a large concentration of process plants, has been campaigning against the tax for weeks. Nearly 240 companies, together with civic groups, have already made their views known through press statements and conversations with city officials. They argue that new taxes would spike present expansion plans, discourage new industry from moving in.

But things are beyond the talking stage. The new tax has been signed into law. Opposition has organized. Lawsuits have been filed. And companies that have threatened to close down unless they were granted long-

range tax relief are beginning to act.

Revere Copper & Brass, for example, said last week that because of the new levy, it's calling off a \$3-million expansion planned for next year. Olin Mathieson threatens to close down its 500-employee Curtis Bay plant. Other companies are considering similar moves.

Despite the opposition and impending hearings, Baltimore officials feel they're on solid legal ground. The test of the new law is being watched, not only in Baltimore but also in many municipalities where industrial property is being eyed as a relatively untapped source of tax revenue. The outcome of the case may well guide other cities in considering such a levy for their own needs.

EXPANSION

Isopropyl Alcohol: Shell Chemical Corp. will boost its total production of isopropyl alcohol by 120 million lbs./year when it completes a two-stage expansion now under way at its plants



Hopes for Hawthorn

HERCULES Powder and Imperial Chemical Industries are striking what they hope to be a prophetic note. They've chosen Hawthorn Chemical Corp. as name of their subsidiary that will produce methyl methacrylate at Louisiana, Mo. (CW Business News letter, July 21).

Significance: the hawthorn is Missouri's state flower, and the firms hope that Hawthorn's sales position will reflect the popularity of its namesake.

Heading up the new company will be Richard Yates (above), a longtime Hercules employee.

Washington Angles »

» **Drug makers and narcotics officials**—after an exploratory meeting last week—agreed to name smaller task groups to “try to harmonize” their split over key features of the Karsten bill, which proposes new regulations for production of synthetic narcotics.

“Cordial—no major policy differences developed”—that was a description of last week’s meeting of 12 industry officials with Narcotics Commissioner Harry Anslinger. He’s backing mandatory licensing and production quotas for synthetic narcotics producers—but the makers want less rigid controls.

Aim of the 30-page bill is to carry out international agreements limiting narcotics output and shipments—a much more complex job than it was—since narcotics are now synthesized from a variety of readily available materials.

» **Power reactor development** by civilian concerns will give the chemical industry considerable stake in the new program proposed by AEC Chairman Lewis Strauss. Major point in this connection is that Strauss is proposing a greater federal contribution to research and development costs.

This increase in federal subsidy would apply not only to reactor development, but also to improvement of materials, cheaper and longer-lived fuel elements, reactor physics, heat transfer methods, fluid mechanics, chemical processing, waste disposal, reactor safeguards, and many other phases of power reactor development.

In addition, Strauss is asking the commission for quick action to establish charges at which it

will be willing to contract out the chemical processing of nuclear fuel elements used in government facilities.

Finally, he is proposing that federal financial assistance to reactor projects be broadened to take in, besides power reactors, reactors for chemical processing or treatment of plastics or any one of a growing number of other uses for reactor heat.

» **Liberal tax credits on business gifts** for education got prime attention from chemical and other process industry witnesses at last week’s resumption of hearings by the House-Senate subcommittee studying automation.

Dow Chemical’s basic research chief, John Grebe, urged tax rebates to allow corporations to “double or triple” their spending on scholarships and educational methods research “at the same net cost.”

And, Robert Sheen, president of Milton Roy Co., a chemical pumps producer, urged a \$1.50 tax deduction for each \$1 that corporations give to colleges in the next 5 years.

» **A new tax relief plan to aid small business** was also put forth by Sheen, who heads the Instrument Society of America. He got a pledge from Subcommittee Chairman Wright Patman (D., Tex.) to seek action on it next year. The gimmick: allow any firm to consider as normal business expense its first \$50,000/year of capital investment and choose its own method of depreciating cost of such equipment. Patman, “very much impressed” with the idea, said it should produce quicker relief than his own—or other—tax relief proposals.

Though odds are against special tax moves to aid small business next year, you can look for the Administration and Congress to study such plans.

in Houston, Tex., Norco, La., and Dominguez, Calif. The first stage will add 70 million lbs./year to present capacity and is scheduled for completion in 1957. The second stage, a 50-million-lbs./year addition, is slated for operation by late 1958.

• **Sulfuric Acid:** Canadian Industries Ltd. will build a \$3-million sulfuric acid plant at Copper Cliff, Ont., scheduled to supply 300 tons/day of acid for uranium processing at two mines in the area. The new unit is scheduled to be operating by late '57.

• **Nitroguanidine:** The U.S. Army will build a \$28-million nitroguanidine plant near Pryor, Okla. Construction will get under way next spring, with Chemical Construction Co. engineering the project.

COMPANIES

• **Plough, Inc.** (Memphis, Tenn.), has approved acquisition of Oliver Tablet Co. (Columbus, O.). Plough will exchange 27,500 shares of its common for all outstanding Oliver stock.

• **Powell River Co.,** the Canadian paper producer, has just bought control of Brooks-Scanlon Inc., Oregon lumber firm. Powell will build a 200-300 tons/day pulp mill near the Brooks-Scanlon timber holdings in the Deschutes Plateau region.

FOREIGN

• **Imperial Chemical Industries,** now in the midst of a big building program in Great Britain, will issue the equiva-

lent of \$112 million worth of convertible stock to help finance its expansion. Stockholders of record on Nov. 23, '56, and company employees covered by profit-sharing plans will be offered a 4% price reduction on the new issue. The subscribed shares may be converted into common shares between July 1, '58, and July 1, '60. Negotiations are under way to underwrite the stock and to list it on the London Stock Exchange.

• **Titanium/Japan:** Two Japanese firms, Osaka Titanium and Toho Titanium, are negotiating to supply the U.S. Commodity Credit Corp. with 6,000 tons of titanium sponge under a four-year contract starting Oct. '57. The firms expect that an agreement will be signed before the end of this year.

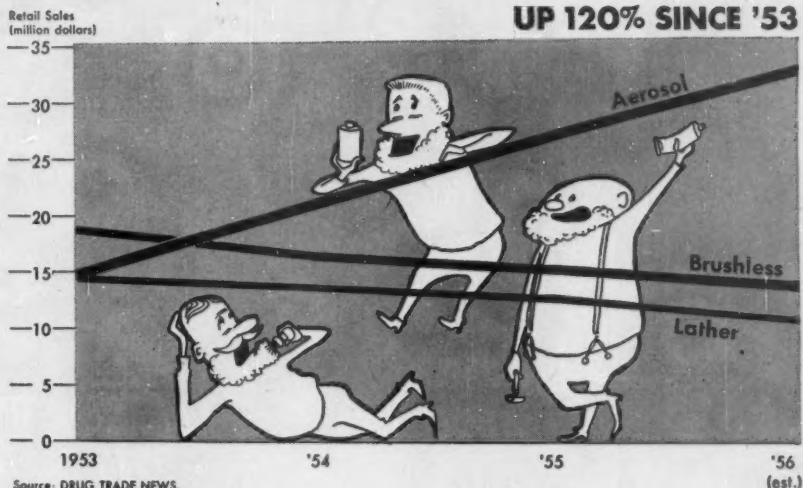
Charting Business

CHEMICAL WEEK

December 22, 1956

AEROSOL SHAVING CREAM SALES:

UP 120% SINCE '53



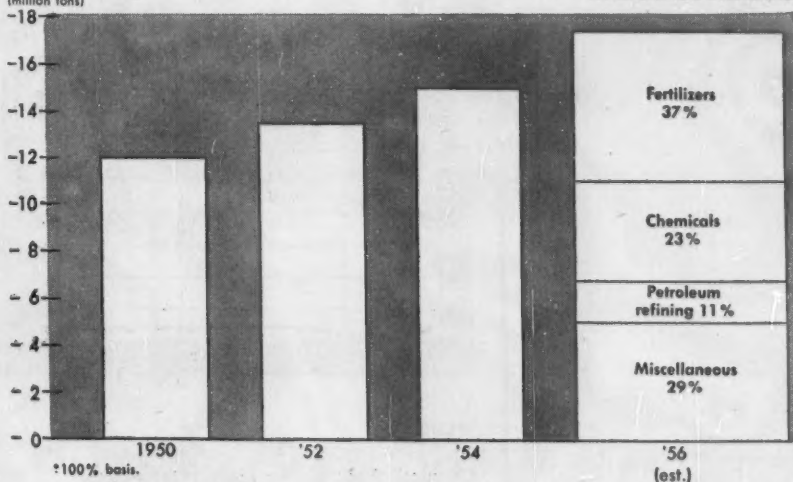
AEROSOL shave preparations are expected to lather up \$33 million in retail sales this year, making them the leading type of shave cream for men. In 1953, aerosol-packaged creams tied lather types for second place, while brushless

products were the headliners. Today, sales of brushless and lather preparations have fallen to second and third place, \$14 million and \$11 million, respectively. Item: the pace-setting pressure shave creams rank third among aerosol products sold.

STEADY RISE FOR SULFURIC

Sulfuric Acid Consumed* (million tons)

Source: CHEMICAL ENGINEERING.



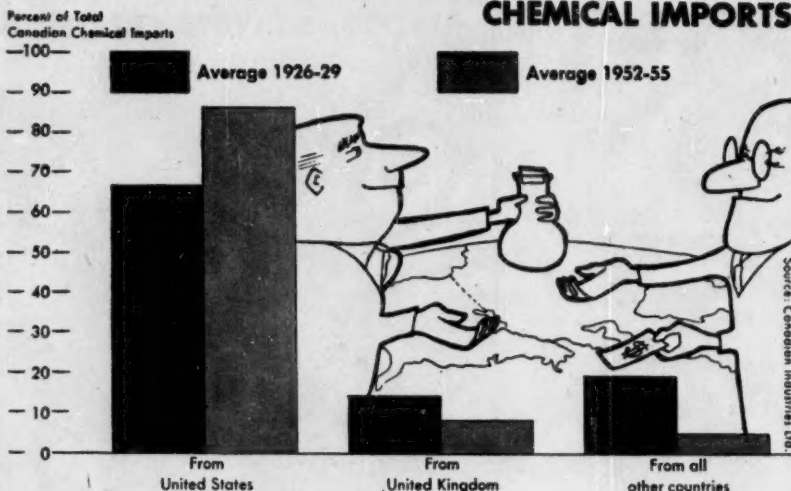
BY the end of '56, sulfuric acid consumption in the U.S. should reach 17.5 million tons—a 45% jump since 1950. Fertilizers, biggest outlet, will this year use up about 6.5 million tons of sulfuric. Other important consumers: chem-

ical production and petroleum refining, which will absorb more than 4 million and 1.8 million tons, respectively; inorganic pigments, 1.9 million tons; rayon and textile finishes, close to 1.5 million tons.

Charting Business

(Continued)

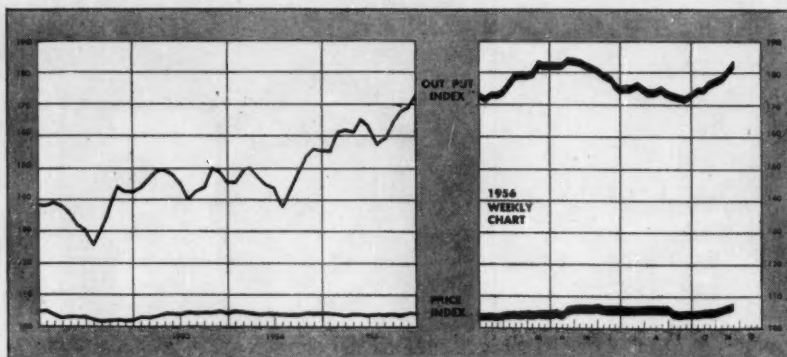
CANADA BANKS ON U. S. SUPPLIERS FOR CHEMICAL IMPORTS



THE influx of U.S. chemicals into Canada has grown from 67% of that country's total imports (average for 1926-29) to 87% (average for 1952-55). This sharp climb has been at the expense of the U.K.—second impor-

tant chemical supplier to Canada—and other countries. This year, Canadian chemical imports—mainly plastics, drugs and paints—will likely score a \$285-million value, of which \$250 million worth will be supplied by the U.S.

BUSINESS INDICATORS



WEEKLY

	Latest Week	Preceding Week	Year Ago
Chemical Week Output Index (1947-49=100)	186.5	186.2	172.0
Chemical Week Wholesale Price Index (1947=100)	107.5	107.6	104.7
Stock Price Index of 11 Chemical Companies (Standard & Poor's Corp.)	426.0	436.2	473.7

MONTHLY—Wholesale Prices (Index 1947-49=100)

	Latest Month	Preceding Month	Year Ago
All Commodities (other than Farm and Foods)	124.2	123.6	119.4
Chemicals and Allied Products	108.2	107.7	106.6
Industrial Chemicals	122.5	122.6	119.3



Season's Greetings

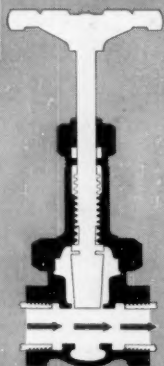
and thank you for choosing CARBIDE's Chemicals during 1956

Carbide and Carbon Chemicals Company
A Division of Union Carbide and Carbon Corporation

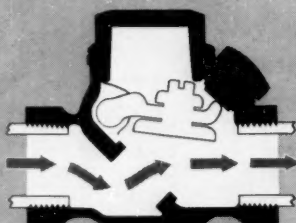
Alcohols • Aldehydes • Anhydrides • Aryl and Pyridine Type Compounds • CARBOWAX* Polyethylene Glycols • CELLOSIZ*
Hydroxyethyl Cellulose • CELLOSOLVE* and CARBITOL* Glycol-Ethers • CRAG* Agricultural Chemicals • Ethers and Oxides •
Glycols and Triols • Hydrocarbons • Ketones • Metallic Salts • Nitrogen Compounds • Polypropylene Glycols • TERGITOL*
Surface-Active Agents • UCON* Fluids and Lubricants . . . *Registered trade-mark of Union Carbide and Carbon Corporation.

POWELL

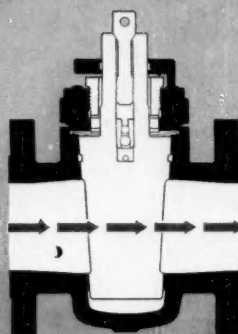
for all valve needs



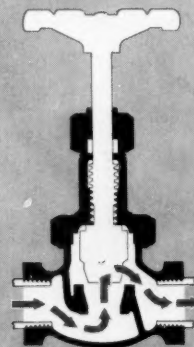
GATE VALVES
For Straight Through Flow,
Less Pressure Drop.



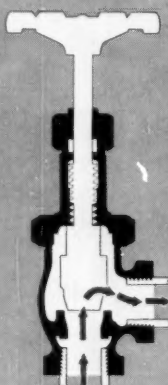
SWING CHECK VALVES
For Straight Through Flow,
Less Pressure Drop.



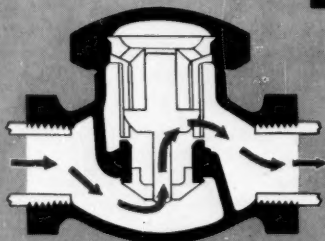
**LUBRICATED
PLUG VALVES**
For Quick
Positive Shut-off.



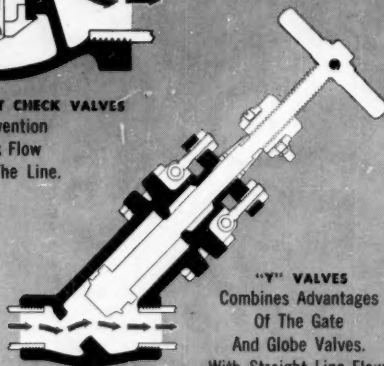
GLOBE VALVES
For Throttling Service.
Controls Flow To Any
Desired Degree.



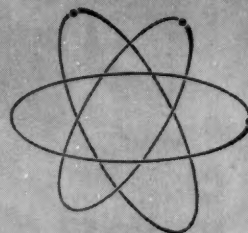
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ADMINISTRATION



BRIEFED, PAID AND 'BONUSED': Pocketing paychecks, St. Joseph employees leave monthly briefing session.

In Plant and Town, Human Relations Pays

A recently issued patent* on an improved method of metal refining makes it clear that the thorough-going human relations program of St. Joseph Lead Co.'s Zinc Smelting Division (Monaca, Pa.) doesn't totally eclipse that division's attention to advances in technology.

But to its more than 1,000 employees (out of the approximately 5,000 in the entire company) and to approximately 175,000 people living in Beaver County (on the Ohio River, just west of Pittsburgh), this division's scientific and engineering accomplishments are overshadowed by the policies it has pioneered in employee and

community relations. To an important extent, those policies have helped shape the division's destinies.

One instance: in 1940, when the local school board could not get state money to replace a run-down grade school, the company stepped in, built a new school and deeded it to the community.

Two-Way Sharing System: In relations with employees, the division operates on a basis of share-the-news and share-the-profits. This plan centers around regular monthly meetings at which:

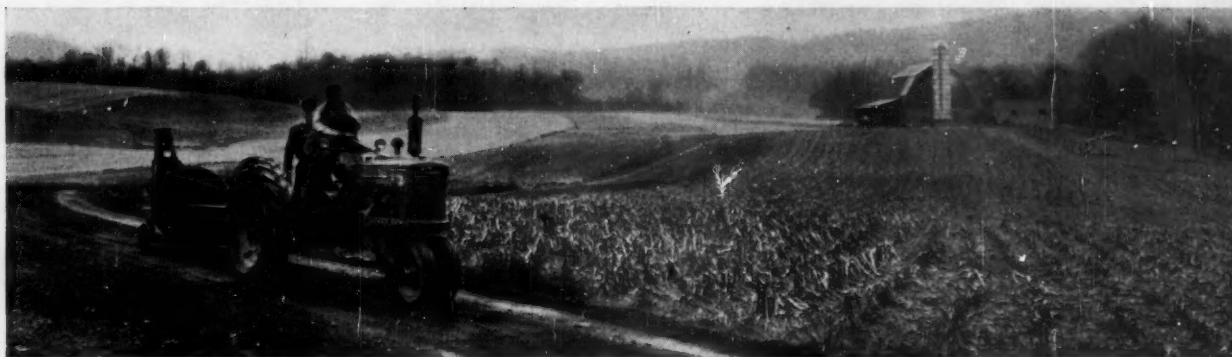
- General Manager John Wehn and other officials report on divisional and corporate developments.
- Employees receive their paychecks, augmented by an incentive

bonus that has gone as high as 26.2%.

Other aspects of divisional employee relations: an annual two-day safety meeting whose high spot is a banquet and party for employees, their wives and guests; an annual company picnic; noncontributory pensions; free insurance; and intramural sports and other recreational activities in a company-provided, employee-built auditorium. Wage rates are "about average," according to Wehn. Employees work a 48-hour week with time-and-a-half pay for the last eight hours and premium pay for swing-shift work.

Company Loyalty: All this may or may not add up to the nickname "benevolent St. Joe" that the company was tagged with nearly 20 years ago, but it certainly has been a factor in

*To H. K. Najarian, the division's general superintendent, U.S. patent 2,766,114, "Method of condensing metallic vapors carried in a stream of gas."



LIVING PROOF: Company-owned farm adjacent to plant shows there's no pollution problem.



WHEN ARGUMENTS FAILED: St. Joe's new do-it-yourself power policy.

building the company spirit for which the firm is noted.

Though the work force has expanded considerably over the past few years, the average length of service among all employees of the division is seven years. Of the 252 persons employed at the plant in '36, 105 are still on the roster.

Company feeling has frustrated all unionizing efforts to date.* Latest National Labor Relations Board election at the Josephstown plant was in 1953, when the former Gas, Coke & Chemical Workers (CIO) took a trimming.

'Social Obligations': Wehn stresses that his division and its employees "are anxious to fulfill their social obligations." Under this heading come payment of a substantial share of local taxes, payrolls amounting to several million dollars a year, company purchasing from local dealers whenever possible, company-owned auditorium and picnic grounds available for use by local civic groups, company-sponsored radio programs of general local interest, and employee participation in civic affairs.

As a continuous demonstration of the innocuous nature of whatever comes out of the plant's smokestacks, the division operates a 470-acre farm right next to the plant site. The farm

provides all the beef and pork for the plant cafeteria—about 4 tons/month—but doesn't pay its way. A good part of the deficit is charged to the company's good relations program with its farmer-neighbors—it provides the farm with the latest and best in farm machinery, and this equipment is loaned free of charge to neighboring farmers, with St. Joe handling all the maintenance and repair work in its own service shop.

In short, this division gets along well with everyone except the local light and power company. Unable to get what it considers a reasonable rate on its monthly energy consumption of about 40 million kwh., the division is getting ready to build two 50,000-kw. generating stations of its own, with construction scheduled to start next year.

Specializing in production of zinc oxide of 99.8% purity, metallic zinc and sulfuric acid (75% of which goes to steel and coke plants in the Pittsburgh district), the Zinc Smelting Division has become a major breadwinner for its company. It's operating 14 electrothermic furnaces now, and two more are expected to be in production in 1957.

There's no way to show in precise figures how the division's human relations program has contributed to corporate growth and sales, but Wehn makes it clear that this factor won't be dropped from the operating equation.

Segregating Unions

Conflicting drives—one on the part of engineering unions, the other on the part of industrial unions—to organize engineers, scientists and other professional employees are spotlighting new industrial relations issues to be resolved in the courts.

So far, only a small fraction of such employees in the chemical process industries have been unionized; but organizing campaigns are picking up steam. Next week, for example, organization will be a principal topic at a conference on white-collar workers to be held by the AFL-CIO's Industrial Union Dept.

In early litigation, the trend is toward decisions favoring clear-cut segregation of professional employees in their own bargaining units, if that's what they want. This was the essence of last week's ruling by Judge Burnita Matthews in U.S. district court at Washington—a key decision that probably will be appealed by the National Labor Relations Board.

No Involuntary Mixing: Summaries of this and other recent related decisions that chemical management might well take note of:

- NLRB must not lump nonprofessional employees with professionals if the latter don't want a "mixed" bargaining unit (*Engineers & Scientists of America vs. NLRB, Westinghouse Electric plant at Cheektowaga, N.Y.*).

- A professional-grade bargaining unit does not have to include all the professional employees in a given place of employment (*Westinghouse vs. NLRB, Westinghouse plant at Jersey City, N.J.*).

- Though the Taft-Hartley Act guarantees to professionals the right to a separate vote on whether to join a "mixed" bargaining unit, it does not give them the right to a separate vote on decertification—except at the end of a contract or after what NLRB considers a suitable waiting period (*Individual engineers vs. AFL-CIO's International Union of Electrical Workers, Westinghouse plant at Jersey City*).

- Professionals must be allowed a separate vote on inclusion in a "mixed" bargaining unit not only when that unit is first proposed, but also at each subsequent representation election (*Westinghouse vs. Federation of Westinghouse Independent Salaried Unions*).

* St. Joe employees' coolness toward unions dates back to before the Pennsylvania plant was established. In 1913, a group of "organizers" skipped town after collecting dues; and in 1924, the beating up of a popular 60-year-old shift foreman was attributed to another organizing team.

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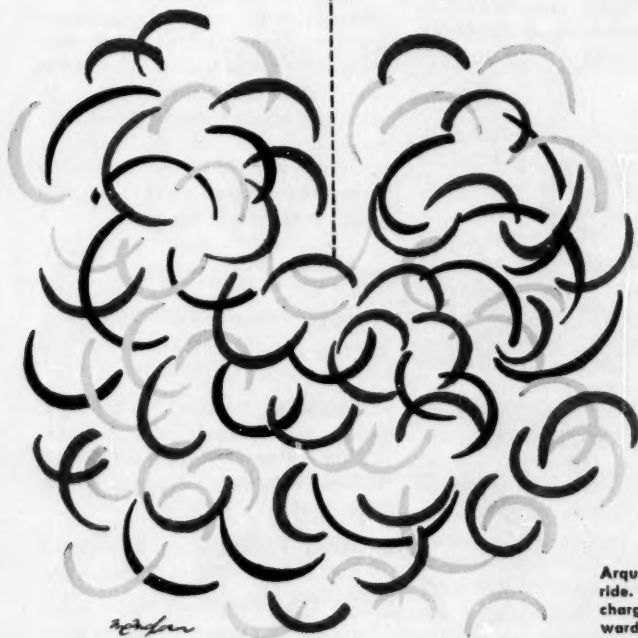
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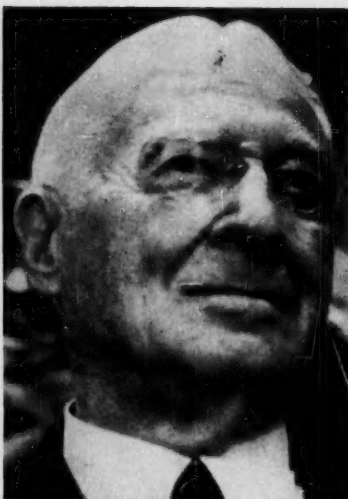
Antitrust Boom: Off to a booming start with a record 29 antimonopoly complaints and six charges of illegal mergers during the first four months of the government's fiscal 1957, U.S. Attorney General Herbert Brownell appears to be out to convince industry there's no letup in sight.

The Justice Dept.'s Antitrust Division in recent actions has:

- Filed a civil antitrust suit charging five electrical-resistance alloys and alloy products manufacturers with fixing and maintaining industry prices and restraining trade.
- Sought to split up the recently merged Owens-Illinois Glass Co. (Toledo, O.) and National Container Corp. (New York) with an antitrust suit filed in federal court in Toledo.
- Announced consent settlements in three civil antitrust suits filed in 1955 against Crown Zellerbach Corp., American Linen Supply Co. and Chicago Towel Co. charging the companies with restraining trade in the linen supply and paper towel business.

In the suit against the electrical-resistance alloys manufacturers — Driver-Harris Co. (Newark), Alloy Metal Wire Co., Inc. (Prospect Park, Pa.), Wilbur B. Driver Co. (Newark), Hoskins Mfg. Co. (Detroit), and C. O. Jelliff Mfg. Corp. (Southport, Conn.) — the government has asked the court for injunctive relief against continuance of the allegedly illegal pricing practices. The court is also requested to grant relief with respect to the defendants' patents on electrical-resistance alloys and alloy products in order to dissipate the effects of the alleged illegal activities.

But as Justice steams full ahead, a fight appears to be brewing in Congress that will have a decided effect on the future course of antitrust activity. The fight revolves around chairmanship of the powerful Senate Antitrust subcommittee. Last year's subcommittee head, Joseph O'Mahoney (D., Wyo.), prefers to have the government's big guns turned on business mergers; while Estes Kefauver (D., Tenn.) — the man actually in line for the chairmanship but too busy with preconvention campaigning to take charge last year — would like to see Congress concentrate on antitrust legislation from the small-business point of view.



BARUCH: He favors less emphasis on sympathy, greater stress on economics.

LABOR

Elderly Employees: The problem of elderly job applicants is again up for public consideration, and in testimony that may have wide application, elder statesman Bernard Baruch told a New York state assembly joint legislative committee that he is against any state law compelling employers to hire people over 40 years of age.

Requested to present his views by state Sen. Thomas Desmond, committee chairman, the 86-year-old Baruch, long a financier and government consultant, said more can be done for the cause of elderly people by "education" than by compulsion.

"You cannot legislate understanding. Businessmen must be helped to understand the valuable resource that older workers comprise," he said.

Baruch, in expressing views that Desmond believes will "undoubtedly have a strong bearing" on the committee's position, asserted that reluctance to employ older people can be only partly overcome by appeals to the heart. "Equal, if not greater stress should be placed on the numerous dollars-and-cents advantages of employing older workers," he added.

• **More Workmen's Compensation:** New York's Federation of Labor has served notice that it plans to win a 50% increase in maximum workmen's compensation benefits during the 1957 legislative session. The federation's executive council — which just completed

its annual legislative conference — also agreed to work for increases for the state's other two social insurance programs, unemployment insurance and disability benefits.

The labor group proposes an increase in maximum unemployment insurance benefits from \$36 to \$50 a week, and a boost in disability payments for sickness not connected with a worker's job from \$40 to \$50 a week.

In addition, the federation would revise the law so that workers would receive additional allowances for all three programs if they have dependents. For the past two years, Governor Harriman has been urging that the legislature provide for dependency benefits of \$4 a week for each dependent, up to a maximum of \$12.

The labor executive committee also voted to ask for revision of legislation approved during the 1956 session regulating labor union welfare funds. Only those funds administered jointly by union and management representatives are now covered, and the federation believes that funds administered solely by employers should also be subjected to the same type of regulation.

KEY CHANGES

Robert T. Stevens and **Howard J. Morgens**, to directors, Owens-Corning Fiberglas Corp. (Toledo, O.).

Warren S. Johnson, to manager, alcohol and chemical sales, U.S. Industrial Chemicals Co., a division of National Distillers Products Corp. (New York).

Edward F. Wagner, to manager of development, Witco Chemical Co. (New York).

Morgan W. Rider, to assistant director, technical division, Olin Mathieson Chemical Corp. (New York).

E. Colin Baldwin, to executive vice-president and director, Sherwin-Williams Co. of Canada, Ltd. (Montreal).

S. S. Inch, to vice-president and director of sales; and **John E. Menz**, to vice-president and general sales manager, sales company; Kaiser Aluminum & Chemical Corp. (Oakland, Calif.).

Frank M. Norton, to vice-president; and **H. E. Imes**, to director of operations; Semet-Solvay Division, Allied Chemical & Dye (New York).

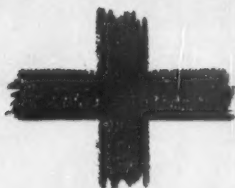
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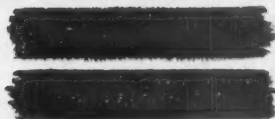
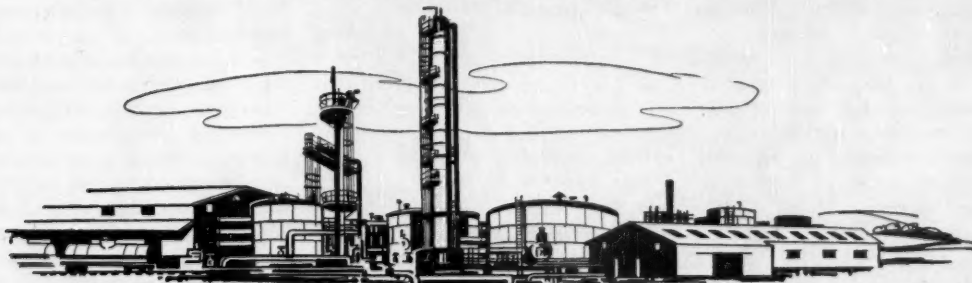
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OM's Donald Ward . . .

. . . on transportation excise taxes: 'Their discriminatory nature, their characteristic of unfairly diverting traffic, their tendency to fall heavier on low-income groups and small shippers, their pyramiding effect on the cost of goods, and their discouraging effect on travel all indicate that we would be far better off without them.'



Excise Tax Takes a Lashing

Freight rates is a touchy subject these days. Traffic managers are facing the prospect of a 22% rate increase if the Interstate Commerce Commission gives the railways their way. This increase would be the fifth hefty boost allowed the railroads since the war. Since '46, rates have jumped in successive stages 17.6% ('46), 22.6% ('48), 9.1% ('49), 12.8% ('52), 6% ('56). In light of all these increases, it's not surprising to find shippers seeking ways to soften the blow (*CW*, *Washington Angles*, Dec. 15, p. 32).

Last week, Donald Ward, assistant vice-president of Olin Mathieson Chemical, went before Rep. Jere Cooper's (D., Tenn.) House Ways & Means Committee to argue for repeal of excise taxes on transportation of passengers and freight by for-hire carriers.

Backing Ward were 49 organizations that make up the National Conference for Repeal of Taxes on Transportation. The group consists of such diverse interests as the National Coal Assn., the Traffic Bureau of Sioux Falls, and the National Basketball Assn.

Also in the conference are the transporters themselves, represented by the Assn. of American Railroads, the American Waterways Operators and the National Tank Truck Carriers. The closing of ranks among the last three groups is a measure of the importance attached to repeal of the taxes.

Ward stressed two reasons why excise taxes on transportation should be repealed:

- They were imposed during the war to discourage civilian use of the hard-pressed transportation facilities of the country—a situation that no longer exists.

- They were intended as a temporary measure to help fill specific revenue needs.

Said Ward: "Despite the fact that the specific reasons for enacting these excise taxes have disappeared, Congress has made only one over-all change in them since the end of World War II. That was the reduction from 13% to 10% in 1954 of the tax on passenger fares." He pointed out that though similar emergency excise taxes were imposed during World War I, they were repealed about three years after the war. Canada, he noted, repealed its World War II 15% passenger transportation tax in March '49, some 3½ years after the war.

The excise taxes to which Ward refers come to some \$702 million broken down as follows: passenger, \$215 million; freight, including coal, \$451 million; and oil by pipeline, \$36 million.

Ward brought a convincing attack to bear on the freight situation, cited—among other objections to the 3% tax on freight—these points:

- The taxes represent a levy on a necessity—the flow of goods throughout our economy—compared

with taxes on so-called luxuries or nonessentials.

- Since the transportation function must be performed a number of times in the transition of raw materials to finished products and in the final distribution to consumers, these taxes tend to pyramid—that is, they add another cost at each stage of production or distribution, not only increasing the price of the product at retail level, but also increasing freight rates as the values of the articles being transported are forced upward by each application of taxes.

Ward also objects to the fact that the taxes are imposed as a percentage of the freight charge, representing serious problems to distant shippers who must pay a higher tax on an already higher freight bill. It's Ward's contention that, since general freight rate increases are also being made on a percentage basis, these same shippers find themselves in constant danger of being priced out of competitive markets.

"This percentage feature," says Ward, "also finds all shippers paying twice in general rate increases—once in the form of higher costs for actual transportation services, which are usually the result of higher carrier costs, and again in the form of higher taxes because of the larger tax base. The carriers, in presenting their justification for rate increases, are thus acting at the same time as tax solicitors for the government."

Ward points out that the small

shippers, those who cannot afford to provide their own transportation and who lean heavily on public carriers, are the ones who are hit the hardest.

The freight taxes, according to Ward, offer an inducement to divert traffic to nontaxable private transportation, especially in areas where transportation is a major cost factor or where profit margins are very small. While he recognizes the rights of a shipper to move his own goods, Ward says his point is that Congress should not artificially induce such a shipper to do this as a way to avoid paying the freight taxes. Says Ward, "We must appreciate the fact that for-hire and private carriers are competitors. If traffic is to divert from one to the other, let it be on as fair a basis as possible, and not be a tax disadvantage of one group."

[The movement to private carriage in the chemical industry, however, does not now appear strong. In a recent survey of the chemical industry (*CW*, Oct. 13, p. 114), **CHEMICAL WEEK** found that most shippers would much prefer to deal with common carriers than with the teamster unions on any basis—which they would have to do if they went to private carriage.]

Finally, Ward contends that repeal of these taxes would not necessarily mean a heavy loss of tax revenues. "We believe," he says, "that the effect would be one of considerable return in the form of higher income taxes resulting from the greater volume generated from elimination of many tax deductible expenses."

What are the chances for repeal of the taxes? Best guess: less than 50-50. But not because shippers and transporters have failed to prove their point. Most probable cause for a turnaround: the government stands to lose money by a repeal.

In a statement to **CHEMICAL WEEK**, E. V. Hill, chairman of the Traffic Executive Committee of the Eastern Railroads, took this view: although the transport industry has a good case, it will be difficult to obtain the repeal. "After all," he stated, "there's the problem of finding the money to run the government somewhere . . . and the fact that the transport taxes come to such a large figure is going to make it especially hard to have them repealed."



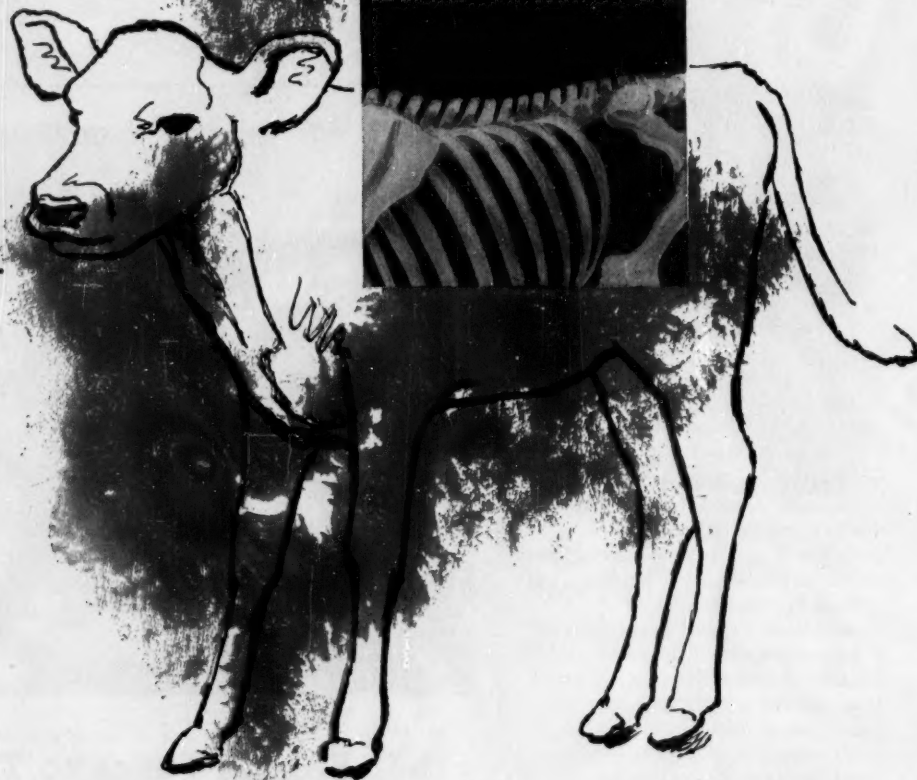
Fiber Fracas Turns to TV

COMPETITION in synthetic fiber makers' race for a commanding position in the home furnishings (curtains, drapes, etc.) marketplace intensified last week as Owens-Corning Fiberglas Corp. disclosed plans to promote Fiberglas products on a national TV show and in four consumer magazines. Invited to a gala

New York "kick-off": buyers, textile manufacturers and home furnishing merchandise managers. O-C faces stiff competition in its Fiberglas sales effort from Du Pont's Dacron. Item: Du Pont, as part of its merchandising drive, recently launched a "made-of-Dacron" tagging program for a line of curtain fabrics made of Dacron fiber.



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Technology

Newsletter

CHEMICAL WEEK

December 22, 1956

The U. S. Army is leaving the door of its soon-to-be-built

Ionizing Radiation Center (Lathrop, Calif.) open for studies of the effects of radiation on plastics, organic and inorganic chemicals, textiles and leather goods. Army Quartermaster's radiation planning agency is setting up the facility primarily to study atomic processing of food (particularly meat), will provide irradiation services for chemical studies as time permits.

QM officials are now screening proposals (submitted before the Dec. 14 deadline) to select a civilian contractor to operate the center's 1,000-tons/month food processing plant. AEC is designing, and will contract for, a 15-megawatt nuclear reactor at the plant; Army Ordnance is contracting for a 20-million-volt electron generator and for construction of the plant.

A chemical that can be spray-applied to railroad tracks to improve traction is on the way. Developed jointly by Reading Co. (Philadelphia), National Aluminate Corp. (Chicago) and General Electric, the compound is still in an advanced experimental stage (not yet available for sale). Its chemical makeup remains a closely guarded secret.

Effectiveness of the compound in conditioning rails to reduce wheel slippage depends on its ability to cut through the almost invisible film of oil that drips onto the tracks from journal boxes. Unlike sand, which is applied to the tracks by locomotives, the new material would be spread onto tracks by a motorized car operating independently of the trains.

Cost of chemically conditioning rails hasn't been disclosed. But Reading Co. President Joseph Fisher estimates that it would increase tonnage ratings by at least 25% over present adhesion limits. Fisher also claims that traction would be improved under all weather conditions, but doesn't go into details of how the chemical might be affected by icing, other severe weather conditions.

Increased spending on chemical and other nonweapon research is disclosed in the Atomic Energy Commission's just-issued annual financial report for the year ending last June 30. The report shows an 11% hike—to \$81 million—over the previous year's spending for research in chemistry, metallurgy, biology, medicine and "other studies of the nature and behavior of the atom and its multiple possibilities of improving living standards."

The National Bureau of Standards will augment its new research program on free radicals (*CW Technology Newsletter*, Dec. 15) by holding a three-day symposium next Sept. 18-20 on the formation and stabilization of free radicals.

Technology

Newsletter

(Continued)

The bureau looks on the symposium as a "valuable medium of exchange of information in a rapidly growing field." Its sponsors, besides NBS: the Applied Physics Laboratory of Johns Hopkins University and the Catholic University of America.

Utilization of Hawaiian Bauxite as a source of alumina (*CW Business Newsletter, Dec. 1*) may call for extensive research, new or modified processing techniques. But Reynolds Metals says it is ready to proceed with steps through which it could acquire mineral rights.

Horizons Incorporated is setting out on a research quest for a photosensitive thermoplastic resin. Aim of the work, being sponsored by the Navy, is to find a technique to simplify the preparation of three-dimensional terrain models. Here's the idea: a negative containing contour lines and other terrain features will be transplanted to the plastic (thermally stable up to 300 F) through a photographic process.

Two university scientists have made natural rubber nature's way, in a test tub. In a study under auspices of the Army Quartermaster, Howard Teas, associate biochemist at the University of Florida, and R. S. Bandurski, of Michigan State, isolated the enzymes that bring about the formation of rubber, and then, by radioactive techniques, traced the mechanism.

The work has little immediate commercial value but Teas and Bandurski hope it will open the way to a more complete understanding of the synthesis of other chemically related compounds (E.G., vitamin A, turpentine, essential oils.)

Longer life, greater efficiency and smaller size for electrical equipment—that's what Westinghouse scientists hope will result from their work on coating copper wire with aluminum. They've managed to put a layer of aluminum skin—2.5 mils thick—on the copper wire. And they've coated that with a second coat of a high-temperature insulator.

As Westinghouse sees it, one of the main limitations on wire is the metal rather than the insulation materials (which withstand high temperature quite well). As oxygen gradually seeps through the insulator, it forms a layer of copper oxide on the surface of copper wire. As this layer grows, it degrades the insulator.

By putting a layer of aluminum around it, Westinghouse engineers effectively sidestep the problem. Aluminum oxide forms on the aluminum, is a self-protecting coat that prevents further penetration by oxygen.

But doing this was no mean trick. The copper and aluminum react, form a brittle layer between them. So to get around that, the engineers first plate the copper with silver. In the final wire, this silver layer is only about 0.5 mil thick.

How Du Pont SPECIALTY Surface Active Agents Can Be Helpful to You

There's a good chance a Du Pont specialty surface active agent can help you no matter what you're working on currently. That may sound like a sweeping statement, but frankly, we're amazed at the ways chemists and manufacturers use these materials. Nothing could surprise us now.

For all we know, you might be involved in one of the operations listed below, where Du Pont surface active agents are working—and working rather well, we might add.

If you're interested in emulsion polymerization: You might be working with paints or plastics, in which case you should know we have a surface active agent that in some systems increases rate of polymerization and assists in maintaining uniformity of particle size and distribution.

If static electricity is a problem: An aerosol manufacturer took a tip from the textile industry and now uses one of our surface active agents in his anti-static formulation. Sprayed on a rug, this material forms a conductive coating that continuously drains off electricity and thus prevents it from building up.

If you're concerned with oil production: There are acid-stable Du Pont surface active agents used to promote the wetting action of penetrating acids.

If your business involves metal processing: Reports show one of our surface active agents aids the pickling operation and the foam formed on the surface of the bath reduces the escape of acid fumes.

DID WE MISS YOU?

Quite possibly we did. If you're anything like a plaster manufacturer we know, however, you'll ignore the known uses for these specialty chemicals and go ahead on your own. He picked out one of our surface active agents and made acoustical plaster with amazingly uniform cell structure.

There are over 50 Du Pont surface active agents available, among them anionics, cationics, non-ionics and some amphoteric. Rigidly controlled as to quality and uniformity, they are particularly useful as foam builders, emulsifiers and wetting agents. We call them *specialty* agents because they have a talent for doing jobs few others can do.

Tell us about your application . . . We can't come up with the right answer every time in this complex, diversified field, but we're only too glad to offer you the benefit of our experience. Why not give us the details of the possible application you have in mind? We'll do our best to suggest the best surface active agents for your use. Just fill out and mail the coupon below.

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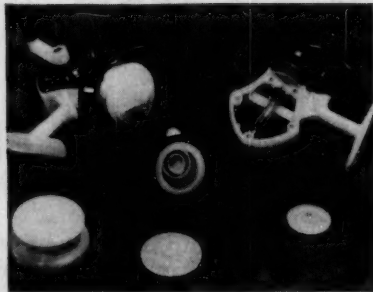
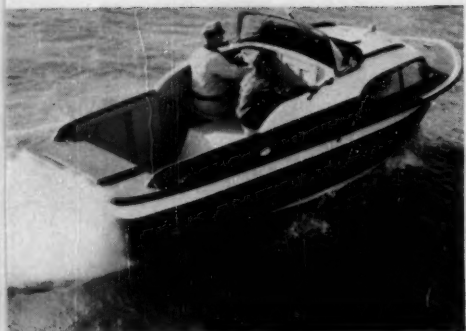
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MARKETS



REINFORCED-PLASTICS OUTLETS are diverse and expanding rapidly; there's no question that . . .

Polyesters Are Booming—But How Much?

How much polyester resin is being made and used in the U.S.? How fast is the industry growing? The answers don't emerge easily.

This late in the year, for example, fairly close agreement might be expected on the year's total amount of polyester used for reinforced plastics, but industry estimates actually range from a quite conservative 50 million lbs. to what some observers consider a "fantastically optimistic" 80 million lbs.

Perennial Complaint: This confusion has plagued polyester marketers for years; it becomes evident when data reported by the U.S. Tariff Commission is compared with data issued by the Society of the Plastics Industry.

In 1953, says SPI, 26 million lbs. of polyester resins were used in reinforced plastics; the Tariff Commission reported that nearly 19.7 million lbs. were produced for reinforced plastics and 10.9 million for all other uses. (Tariff data was "obtained by special questionnaire.")

In 1954, the respective estimates (for reinforced plastics uses) were: SPI, 27 million lbs.; Tariff, nearly 35.7 million. In 1955: SPI, 49 million; Tariff, 50.4 million lbs.

Actually, the methods of reporting differ—SPI's figures represent amounts

of polyester used for reinforced plastics, Tariff adds up production figures for reinforced plastics. Whether or not the figures are really comparable is moot. Consensus is that there's little if any polyester holdover from one year to the next, that data, therefore, can be compared. On the other hand, the three-year totals are nearly the same, suggesting that comparisons are valid only over the long range.

Nonetheless, spokesmen for the Tariff Commission and for SPI readily agree that no completely reliable figures are extant. To that end, both groups urge all concerned to endeavor to clarify the muddle in '57. The contradictory information now available is of little or no help to polyester marketers trying to chart a course in the highly competitive plastics business.

Crux of Confusion: Responsibility, at least in part, for the ambiguous data harks back to polyester makers themselves. During the past few years, most were content in the knowledge that their business was growing at a good clip. Now it's conceded that with sales in a multimillion-dollar bracket, something more than "guesstimates" of progress is needed.

The casual attitude on the part of polyester makers is reflected in SPI data, which—unlike that compiled by

the Tariff Commission—represents the opinions of only a few industry experts.

How did the experts arrive at their estimates? Probably by totting monthly production figures (from "Facts for Industry") reported by the government.

Case in Point: When SPI reported early this year that 49 million lbs. of polyester resin had been used for reinforced plastics in '55, the government agency had not yet reported its December data; hence, estimates by individual marketers were probably based on 11-month summations and projected to a 12-month basis. Such procedure—especially if the revised data for February and April had been overlooked—would have resulted in an estimated 49.3 million lbs. of polyester made (and presumably used) in '55; SPI rounded it off to 49 million lbs. (Using revised figures for February and April, the Tariff figure would be 50.4 million lbs.)

Although this may well explain the origin of SPI's figure for '55, it does not reconcile the discrepancy between SPI and Tariff Commission data. Reason: late in its '55 survey, the commission discovered that its compilations were wrong; it had to increase by 6.7 million lbs. the total polyester

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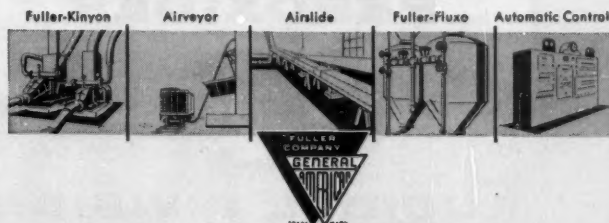
You can do a big favor for both your employees and your earnings statement by resolving to substitute Fuller conveying equipment for obsolete methods in handling dry pulverized or granular materials in bulk.

Your employees will be pleased with cleaner, safer, easier chores, and your stockholders will appreciate the savings your company can realize when Fuller conveying systems take over the job. And you will enjoy watching efficiency go up while costs come down.

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Important dates in the History of Industrial Progress



1837

In electricity . . .

Thomas Davenport patented a device for producing rotary motion by constantly reversing the magnetic polarity of coils mounted on a shaft. It has been said that if the patent were still in force it would embrace every electric motor now running.

In the history of fats and waxes

Andre Gross founded the company that still bears his name. A. Gross & Company quickly assumed a commanding position in the infant fatty acid industry, but it is perhaps a more notable achievement that this leadership has been maintained throughout the 119 years in which the industry grew to its present eminence. Constant emphasis on technological progress is an important reason, and GROCO 2-RED OIL affords a typical example. Its properties reflect the care with which special purpose fatty acids are distilled in the modern Gross plant.

Send for samples and catalog "Fatty Acids in Modern Industry".

GROCO 2-RED OIL (OLEIC ACID)	
Atre	3°C. max.
Cloud Point	38°F. max.
Color 1" Lovibond Red	2 max.
Color 1" Lovibond Yellow	15 max.
Unsaponifiable	1.5% max.
Saponification Value	198 - 203
Acid Value	197 - 202
% F.F.A. as Oleic Acid	99 min.
Iodine Value (WIJS)	96 max.
Refractive Index 50°C.	1.4505
(Average)	

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MARKETS

production for all uses—i.e., from 54.8 million to 61.5 million lbs.

Two reasons for the sizable last-minute revision: (1) greater industry coverage was obtained during the latter part of the survey, and (2) some itemizations, originally carried in styrene compilations, were reclassified into the polyester listings where they really belonged.

Also, the original breakdowns into production for "reinforced plastics" and "all other" uses were discarded because polyester makers were not reporting in a manner that provided reliable data for such a breakdown.

What About '56? SPI's current estimate on the use of polyester resins for reinforced plastics in '56 is 73 million lbs.; that's about 1 million lbs. more than the total production (for all uses) indicated by the Tariff Commission's monthly figures.

Does the commission envision the need for further upward revisions of its own data again this year? Not this time, it says, adding that the '56 total reported to date (almost 53.9 million lbs. for the first nine months) should be just about right.

Meanwhile, the government agency's spokesmen are adamant in their refusal to estimate end-use breakdowns, but do hold out hope that in '57 the service—this time based on more reliable fact-finding—will be resumed.

One independent observer's guess is that, of the near 5.37 million lbs. of polyester produced in September, 5 million lbs. will go into reinforced plastics and the rest into other uses. If this ratio is correct and holds for the entire year, polyester use for reinforced plastics in '56 will be about 66 million lbs.—7 million less than the SPI estimate, and about the average of most other predictions, ranging from 60 million to 73 million lbs.

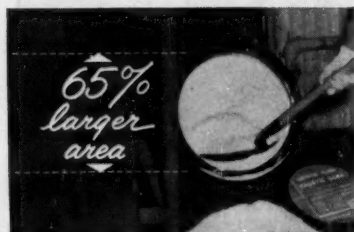
It's a long way from the forecasts by ultraconservatives, who maintain that in '56, only 50 million lbs. went into reinforced plastics, and the opinions of superoptimists, who still predict 80 million lbs. But, all in all, 66 million lbs. for this year seems to be about as safe a bet as any.

Under the circumstances, few will prognosticate for 1957, though some of the more cautious observers are talking about 30% more polyester (some 86 million lbs.) for reinforced plastics. But whatever the volume, polyester marketers happily agree that business is booming.

BRIEFS

for buyers of

Caustic Soda Sulfur Chlorides and Oxychlorides Caustic Potash



New caustic soda drum empties faster

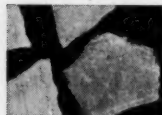
Whether your operators scoop, pour, or shovel caustic soda from drums, they'll find our new drums easier, faster and safer to work with.

The lids on these drums have been increased from 14 to 18 inches in diameter—an increase of 65% in opening area.

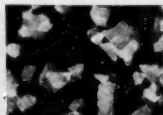
You pay no extra for this new drum. So, if you've been paying a premium to get full open-head drums, you can now get many of the advantages of a larger opening at standard prices.

One thing you *won't* find changed on the Hooker drum is the lid seal. Six sturdy lugs grip the lid tightly to protect both contents and handlers.

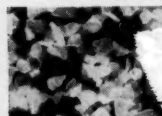
You still have a choice of four flake sizes (shown actual size):



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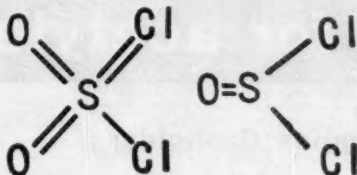
Something else that has not changed is the high quality of the caustic soda going into the drums.

Regular, Fine, and Crystal are non-dusting and have uniform thickness. You can order the new drum in 400- and 450-pound sizes. Our 100-pound drum has a 10-inch opening.

Want to chlorinate or sulfonate?

In many cases you'll find it's easier and safer to work with Hooker sulfuryl chloride or thionyl chloride than with elemental chlorine or sulfur.

To our best knowledge, we alone manufacture these chemicals in commercial quantities. Both make excellent chlorinating agents. Either may be used to introduce sulfur or oxygen and sulfur.



Hooker sulfuryl chloride is 99+ % pure. You can get Hooker thionyl chloride in two grades. The technical is 93% pure (min.); the refined is 97.5% pure (min.).

Two simpler chlorinating agents

You can also purchase sulfur monochloride and sulfur dichloride from us. The monochloride (technical grade) has a chlorine content of 52 to 52.5%. The dichloride is 66% chlorine.

You can get complete technical data on any of these compounds by checking the coupon.

13 ways to buy Nialk® Caustic Potash

If you're using caustic potash at all, you're probably using the liquid form,

45% to 52% strength. This is the most popular choice by far, since it's easiest to use and store in bulk quantities.

However, for those jobs where you require a different form or grade, we offer you these 12 alternatives as well:

Solid; flake; granular; broken; crushed; powder; walnut—all at 90% strength.

Solid and flake, at 85% strength. Liquid, low-chloride—45%.

Solid, low-chloride; flake, low-chloride—both 85%.

This variety of forms is just one of many reasons why NIALK is the most popular of all brands of caustic potash, accounting for almost half the tonnage sold in this country.

For complete specifications on all 13 forms and grades, and for a bulletin that describes our manufacturing and shipping methods, check the coupon.

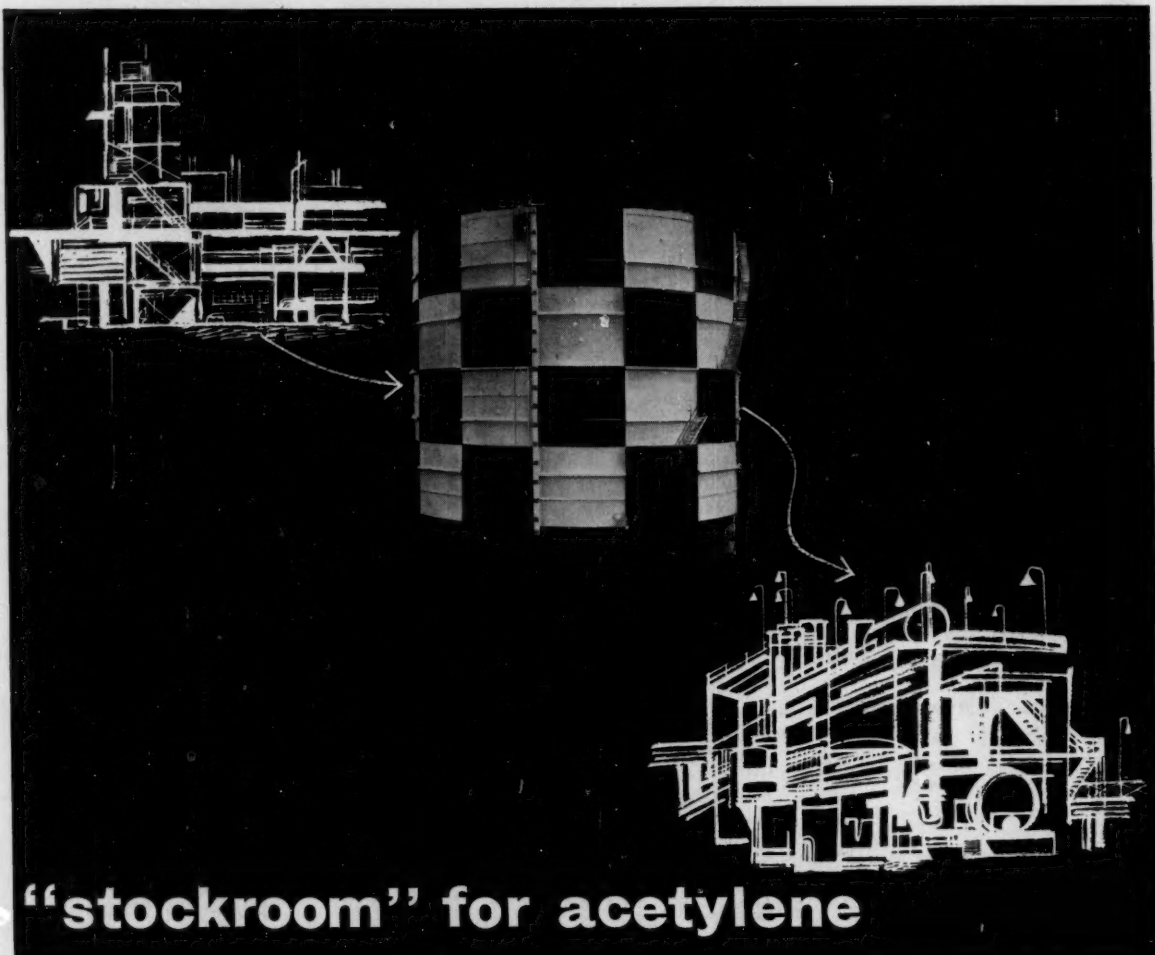
For more information on chemicals mentioned here, check below:

- ☐ Caustic Soda
- ☐ NIALK Caustic Potash
- ☐ Sulfuryl Chloride
- ☐ Thionyl Chloride
- ☐ Sulfur Monochloride
- ☐ Sulfur Dichloride
- ☐ Chlorinating Agents (Bul. 328A)

For information on these other Hooker chemicals, check below:

- ☐ Benzyl Chloride
- ☐ Benzoyl Chloride
- ☐ NIALK Carbonate of Potash
- ☐ Muriatic Acid

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“stockroom” for acetylene

Linde purchases Wiggins Gasholder for storage of acetylene between production and use cycles

When Linde Air Products Company's new acetylene plant in Montague, Michigan goes "on stream", a new 100,000-cubic-foot Wiggins Gasholder will play a vital role in the operation. Every cubic foot of acetylene produced will pass through the "stockroom" on its way to DuPont for use in the production of Neoprene. The gasholder will provide acetylene storage and will serve as surge capacity to enable Linde to satisfy both normal and emergency requirements.

If you produce, store or use gases, investigate the advantages of Wiggins Gasholders. They can be built to any capacity—from 50-cubic-feet to a million. Call or write General American for complete information.



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Market Newsletter

CHEMICAL WEEK
December 22, 1956

Most soda ash and caustic soda buyers are taking their usual seasonal breather in placing orders. Aim, of course, is to wind up with reduced year-end inventories. One result (predicted to change soon after the start of the new year): more-than-ample supplies. But although a sales slowdown had been expected, some soda ash sellers are describing business (in both light and dense) as "fair-to-middlin'."

The chlorine market is still tight (no easing expected until new capacities come in next year), and the pinch is resulting in greater quantities of caustic. Oversupply of the latter, however, has been kept below the worrisome level by a generally active demand from rayon, paper and pulp, other chemical outlets.

As for prices in the chloralkali field, contracts are being signed now (for next year's deliveries) at current quotes, but some observers are predicting increases during '57.

•
Tagged with seasonal "effective Jan. 1" labels, notices of price changes are filed daily. New ones that turned up last week include anhydrous ethyl alcohol. The increase essentially widens the long-standing 5¢/gal. differential between 190-proof material and anhydrous, restores the 7¢ pre-1952 difference. New tags on the latter: 54¢/gal. in tank cars.

Muriatic acid tabs posted by Frontier Chemical will bring its prices closer to the higher rates that have generally prevailed in the industrial East. Quotes vary, depending on shipping point: from Denver City, Tex., \$2/ton more; from Dumas, Tex., f.o.b. tabs are upped from \$19.69 to \$21/ton, while delivered prices go from \$23 to \$25/ton; from Wichita, Kan., a \$2/ton increase of f.o.b. tank-car prices will boost the cost to \$23/ton (zone-delivered prices in truckloads out of Wichita remain unchanged).

Notice of a 45¢/cwt. increase in Monsanto's phosphorus pentoxide prices is footnoted with the reminder that pentoxide tags have been hiked only twice since 1945, have not kept up with the climb of material and labor costs. Carload quantities (in 400-lb. drums) will sell for \$13.95/cwt.

•
But the year-end business activity isn't restricted to price changes; several new plants going onstream include Borden's first polyvinyl resin unit.

The nearly 100% automated plant (at Leominster, Mass.) now has a rated capacity of 12 million lbs./year, will be increased to 36 million by the end of '57. A wide variety of specialty resins and vinyl chloride latices as well as general-purpose PVC will be made for calendering and extrusion outlets.

Market Newsletter

(Continued)

Full-scale production—40 million lbs./year—of Celanese's polyolefin (tradenamed Fortiflex) is scheduled for early '57. The new Phillips-process plant at Houston, Tex., is the first of its type to go onstream (with the exception of Phillips' own plant).

Shell Chemical's announcement last week that completion of two new Epon resin (epoxies) units at its Houston, Tex., plant would "triple its production" is stirring speculation in the trade. Shell is mum as to actual capacity figures, but estimates prior to a report of a tripling of its output late in '53 put the company's epoxies capacity at 5 million lbs./year.

This would indicate that Shell is now capable of producing some 45 million lbs./year—a far higher figure than trade analysts are willing to accept. A more likely range: 34-38 million lbs./year.

And di(2-ethylhexyl)amine is now available in tank-car quantities from Carbide and Carbon at 75¢/lb. Expanding markets that make possible increased quantities and lower prices (it was \$1/lb.) include: corrosion inhibitors, antigumming agents for gasoline and fuel oil, flotation uses, emulsion breakers.

First disclosures in the Atomic Energy Commission's program of declassifying secret information last week confirmed earlier *CW* estimates of U.S. uranium ore production and reserves (*CW*, *Charting Business*, Dec. 8). Ore output in '56 was about 3 million tons (just half of what *CW* predicts for '58); total U.S. ore reserves are about 60 million tons.

Production of glycerine in Britain—largest producer except for the U. S.—is now about 50 million lbs./year, according to the U. K. Glycerine Producer's Assn. More than 60% of the output is used by the paint and paper industries.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending December 17, 1956

	Change	New Price
UP		
Molasses, New Orleans, blackstrap feed, tanks, gal.	\$0.005	\$0.28
Sodium hydroxide, NF, pellets, 100-lb. dms., 1-100-dm. lots ...	0.05	0.235
Potassium hydroxide, USP, pellets, 100-lb. dms., 1-100-dm. lots	0.05	0.335
DOWN		
Casein, acid precip., grd., Argentine, bgs., c.l. duty paid.	\$0.05	\$0.2275
Cobalt, metal, 97-99%, kgs. ex-whse.	0.25	2.35
Tung oil, dms., c.l., New York	0.0025	0.25
Tankage, N.Y., animal feeding, 9-11% ammonia, bulk, unit ton	0.25	4.75

All prices per pound unless quantity is stated.

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cellulose acetate butyrate

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diethyl phthalate
dioctyl phthalate (DOP)
di-isooctyl phthalate (DIOP)
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RESEARCH



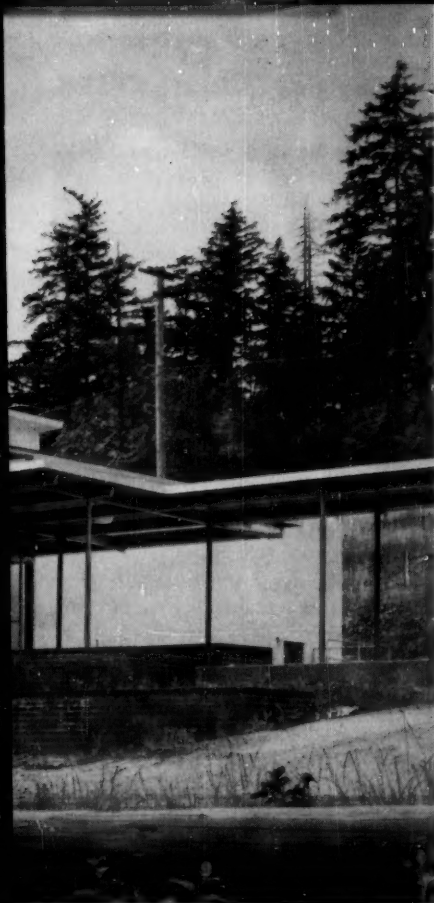
HEARON: In split lignin, tremendous potential.

Turning a New

For a spate of economic reasons, silvichemical research is getting more emphasis by pulp, paper and wood products firms. Silvichemicals—non-cellulosic compounds or mixtures derived from trees—are a logical sideline to provide revenue needed to compensate for rising costs of operation (e.g., getting trees out of the forest and into the mill), pollution control, new plants and equipment. Moreover, the costs of chemicals derived from other sources (fossil fuels and ores) are climbing, providing an opening for stiffer competition from tree chemicals.

Of the three sources of silvichemicals (bark, wood, and waste pulping liquors) the last offers the greatest potential—and challenge. That's largely because spent-liquor disposal is becoming more expensive. And the liquor is a true waste product, unlike wood wastes, which can be used as fuel.

By this week, at least one major forest products firm was regarding its sulfite research program with grow-



OUT OF THE FOREST:
Crown Zellerbach's (Camas, Wash.) research laboratory is one breeding ground for new chemicals from trees.

Leaf in Silvichemicals

ing satisfaction. Crown Zellerbach Corp. (Camas, Wash.), which last year introduced Greenz 26, a tailor-made, iron-containing plant nutrient based on waste sulfite liquor (*CW*, Sept. 3, '55, p. 11), is now bringing along similar products containing other trace materials.

Greenz 30, a zinc-containing complex, is currently undergoing market development and field tests; manganese and copper products are in the research state. The Greenz products are based on Orzan A, CZ's commercial ammonium lignosulfonate-wood sugars mixture.


Other Orzan progeny, differing with respect to molecular weight, pH, etc., include Orzan AH (for ore flotation); Orzan P (a binder for wood products, particularly soft board); Orzan S (for use in refractories and boiler water treatment compounds); Orzan AM (linoleum pastes); Dazon (under development in cooperation with Dewey & Almy as a dispersant in cement manufacturing and as a general-purpose wet-grinding aid); Tanz

(extender for natural vegetable tanning materials such as quebracho). CZ had high hopes, too, for Soilox, an Orzan oil emulsion for dust control on roads, irrigation banks, sandy soil, etc. But it cost too much, lacked durability.

Other forest products firms (e.g., Puget Sound Pulp & Timber, Marathon) have also turned waste sulfite liquor to advantage. But all share a common problem—chemical operations have to be geared to the pulp and paper operation rather than vice versa, because the latter is by far the most important in any terms (tonnage, dollar volume, stability of markets, etc.). As the pulping operation is changed, the raw material for chemical production changes, too.

However, even this difficulty pales before the problem of turning the lignin content of the liquors to best advantage. Lignin chemistry is still murky (structure of lignin hasn't yet been conclusively determined) despite years of research both in this country and abroad. Weyerhaeuser,

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RESEARCH

perhaps the most active company in this research, has been at it since the late '30s. But Weyerhaeuser still has no true chemically processed silvichemical product on the market (Silvicon, Weyerhaeuser's bark product, is physically fractionated, used in oil well drilling muds, etc.).

The hope of lignin researchers is to develop a process (or processes) to break the complex material down into specific chemicals instead of the high-molecular-weight mixtures currently available. Enzymatic reactions involving lignin don't, as yet, yield reproducible products.

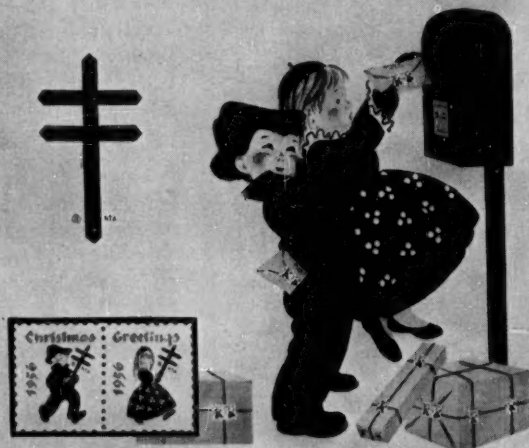
As seen by CZ's chemical products division manager, Monty Hearon, a specific lignin breakdown reaction is a long way off. Says Hearon, "Our big problem is to find new or more economical uses for the lignin mixtures we can now get from bark, wood wastes and liquid wastes. For example, if we could get a 25% yield on the vanillin-from-lignin process (commercial process yields run about 6%) we could develop a new aromatic chemicals industry.

"We actually have split lignin—but not at the monomer-monomer bond. Rather, we have only been able to split off one or more of the groups on the polymer (the methyl radical in the production of dimethyl sulfide, for instance). If all of the methyl radicals present in kraft liquor were recovered, we could make about 400,000 tons/year of dimethyl sulfide in the kraft industry alone. And that's taking into account only one little hunk of the lignin molecule. The potential in the benzene ring of the molecule is simply tremendous."

While new chemicals from bark (e.g., myrecitin, a hexahydroxy bioflavonoid found by Rayonier in Pacific Northwest lodgepole pine bark) and wood (e.g., CZ's thujaplicin and thujic acid, *CW*, July 28, p. 72) are interesting newcomers, lignin is generally believed to be the key to the future of silvichemicals in the chemical industry. Meanwhile, as forest products researchers trade ideas and know-how, their industry is gaining chemical stature.

No one expects silvichemical sales or profits to rival those of lumber, pulp and paper in the foreseeable future. But even as a junior partner, the silvichemical industry seems headed for a bright future.

buy and use CHRISTMAS SEALS fight tuberculosis



SPECIALTY MARKET BUILDERS (from Monsanto)



Blast from burner fails to ignite asphalt mixed with . . .

Montar Resins: FIRE RESISTANCE WHERE IT COUNTS

In the cluttered, clamoring field of industrial resins, you "pay your money and take your choice." But it's rare indeed when you can pay so few cents a pound and have a choice of 5 resins compatible with asphalt, rubber and vinyls—that do so much to tailor these compositions for special jobs.

A case in point is asphalt. The Montar resins, a series of high-melting dark-colored polychlorinated polyphenyls, are compatible with asphalt at ratios up to two parts for each part of asphalt. Incorporated in asphalt mixtures, they make flame-resistant compositions at concentrations as low as 10%. When compositions contain 25-30% Montar resin—flame-out time is instantaneous. Since incorporation is so easy, just simple heat mixing, makers of roofing compositions are perking up their interest in Montars for the sales value of offering outstanding fire resistance in the finished roofing materials.

Suppliers of paving asphalts have a

reason for looking fondly on the Montars, too! With their high softening points (Montar No. 6 softens in the range of 302-410° F.), the Montars can raise the softening point of low-melting asphalts and pitches making them suitable for driveways, parking lots, tennis courts. This raising of the softening point is also of interest in friction materials and potting compounds.

Asphalt linings for boxboard trade on the physical property modification possible with the Montars, with the added advantage of cutting down on fire hazard when handling hot pitch. Three of the five resins have no flash or fire points and flame-out time of mixtures is instantaneous.

Two other major fields of interest for the Montars are PVC compositions for joining sewer pipe and asphalt or vinyl asbestos floor tile. In these applications, the Montars are low-cost extenders for PVC resin; hardeners for flooring compositions. Up to 10 parts per hundred of PVC

resin can be replaced by Montars, reducing materials costs. Handling the Montars in formulating high solids dispersions is easy; just simple mixing. In wet processing, with just 5% of any of several emulsifiers, a solution of Montars can be diluted with water up to 160%.

As if these polychlorinated polyphenyls at less than eight cents a pound did not have enough market—a 50% solution of Montar No. 4 or No. 5 mixed with a 60% solids rubber emulsion in 1:1 ratio makes a strong, low-cost paper adhesive with good, instant tack.

Montar: Reg. U. S. Pat. Office

Samples of Montar resins and Technical Bulletin 0139 listing comparative properties may be obtained from Monsanto Chemical Company, Dept. CS-5, Organic Chemicals Division, St. Louis 1, Missouri.

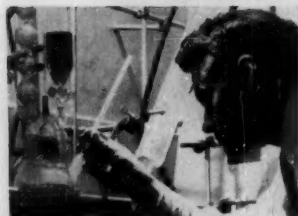
PRODUCTION

Three processes are jockeying for position in lysine race:



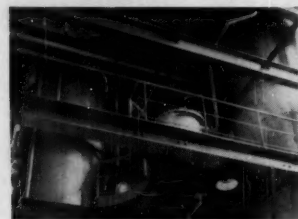
1. **Fractionation of animal blood protein to recover lysine. Meat packers are interested in this one.**

(O.K. for pharmaceutical work, probably too costly for large-volume production.)



2. **Synthesis of lysine from chemicals (e.g., furfural). At least two companies are developing the synthesis approach.**

(Can handle volume output, produces mixture of DL-lysine isomers.)



3. **Fermentation — now ready for large-scale production — with lysine-producing microorganisms.**

(Requires close control of culture growth, yields 98% L-lysine in quantity.)

Lysine Sparks a Process Scramble

If and when lysine wins its long-sought acceptance as a dietary supplement, producers won't be caught napping. To meet the potential surge in demand for this essential* amino acid, several companies are polishing syntheses and fermentation processes for large-scale lysine production:

- Dow has been working on the synthesis approach, last fortnight started up a \$500,000 pilot plant that will produce 15 amino acids.

- Du Pont has been synthesizing lysine on a pilot basis for several years, is reportedly planning to scale the process up to commercial size.

- Merck produces lysine for pharmaceutical use (probably by fractionation of blood protein), is looking into other processes.

- Wilson & Co. expects to start lysine production soon, possibly with a tie-in to other blood-protein amino acids.

*Vital to healthy functioning, essential amino acids—unlike nonessential amino acids—must be ingested, cannot be synthesized by the body.

- USDA's Northern Utilization Research Lab (Peoria, Ill.) and the National Research Council of Canada are independently investigating fermentation processes for the production of lysine-rich microorganisms to be used in animal feed.

- Chas. Pfizer recently went on-stream (*CW Technology Newsletter*, Nov. 24) with a fermentation process that employs a team of two microorganisms to turn out high-purity (98%) L-lysine.

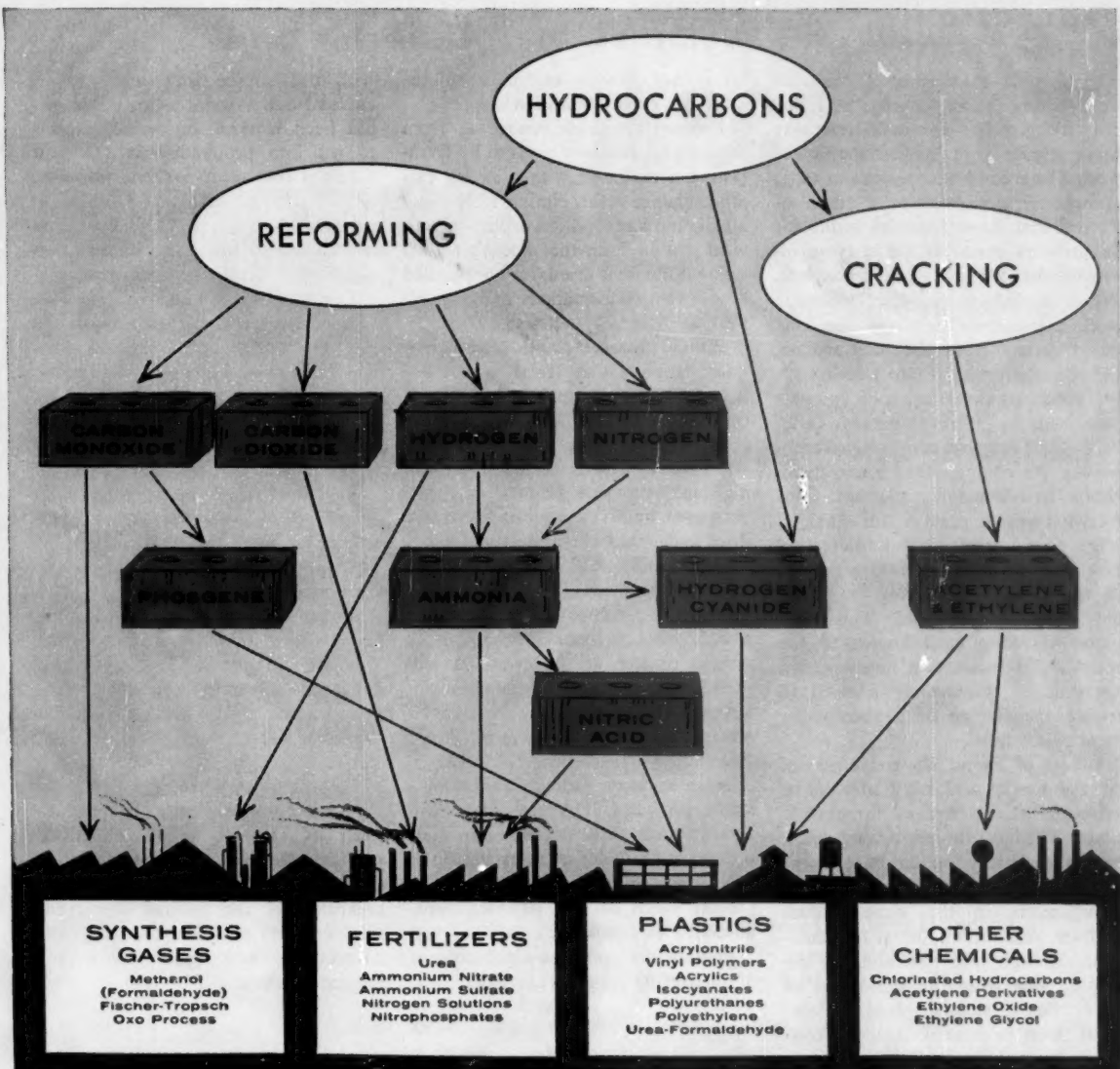
Of the three routes to lysine—recovery of the natural amino acid from slaughterhouse tankage (blood protein), synthesis and fermentation—only the latter two appear commercially feasible for truly large-scale production. First synthesis to gain much attention was the one developed by Du Pont's electrochemical department at Niagara Falls (*CW*, March 7, '53, p. 46). This process started with furfural, went to the amino acid via tetrahydrofurfuryl alcohol, dihydro-

pyran and hydroxyvaleraldehyde. Since chemical synthesis yields the DL mixture of lysine, additional steps are required to convert the biologically inactive D-lysine into the L-isomer.

Du Pont has been producing Darvyl (95% L-lysine) on a pilot scale, is reluctant to disclose the present status of, or its future plans for, the process. However, it's believed that the company may be planning a \$1.5-million plant for lysine production in late '57 or early '58.

Dow's new pilot plant will produce nine nonessential, five essential amino acids besides lysine. One other essential—threonine—will also be piloted when current laboratory studies are complete. Dow already produces methionine (the eighth essential amino acid), acetylmethionine and glycine in commercial quantities.

Fermentation Route: Pfizer's process takes advantage of the unique abilities of two microorganisms to perform highly specific chemical conversions.



**Building blocks for
chemical expansion
...produced with
GIRDLER plants**

These nine basic intermediates made from hydrocarbons, and some of the end chemicals, are produced with Girdler plants. Here is another indication of Girdler's broad experience available to you for the expansion of your processing facilities.

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In Canada: Girdler Corporation of Canada Limited, Toronto

PRODUCTION

The first—a mutant of *Escherichia coli*—utilizes small amounts of lysine for its growth, produces relatively large amounts of α,ϵ -diaminopimelic acid. The second microorganism (e.g., *Aerobacter aerogenes* or a strain of *E. coli* that doesn't require lysine for its growth) produces the enzyme diaminopimelic acid decarboxylase. When added to α,ϵ -diaminopimelic acid, the enzyme removes one carboxyl group from the intermediate, thereby converting it into L-lysine.

Though the fermentation process described in Pfizer's patent (U.S. 2,771,396) employs conventional techniques, the company has found it desirable to add a few variations. Contrary to common practice, for example, Pfizer adds nutrient to the fermentation broth (glycerol and cornsteep liquor) at several intervals during the three-day fermentation period. This technique has long been known to the controlled fermentation industry, but the practice is generally avoided to reduce the chance of contaminating the sterile culture.

Choice of Three: The conversion of diaminopimelic acid into lysine can be accomplished by any of three techniques. The most straightforward method (and probably the one Pfizer uses) is to grow the enzyme-producing microorganisms in the same culture medium used for the initial fermentation. Though this method is the simplest one from the standpoint of the number of steps involved, it's also the trickiest to control. Exacting conditions must be carefully maintained to prevent conversion of diaminopimelic acid into cadaverin (1,5-diaminopentane), which detracts from lysine yield.

The second method eliminates cadaverin production, but requires an added step to extract the enzyme, which is then added separately to the fermentation broth. Enzyme is liberated from the cells of the second microorganism by treating them with toluene. Pfizer has studied this enzyme separation technique for other fermentation processes, which do not depend on the growth process of microorganisms to bring about desired chemical conversions (CW, Sept. 10, '55, p. 101).

The third method—isolation of the diaminopimelic acid from the first fermentation, followed by addition of the second organism or enzyme—requires less purification of product

lysine, but, like the second technique, adds one extra separation step.

Product lysine is recovered from the enzyme reaction mixture by filtration, ion exchange with a strong cation-exchange resin, elution with dilute alkali, and a second ion exchange with weak cation resin that doesn't absorb lysine. Effluent is dried, further purified by conventional methods of recrystallization.

Protein Source: Another fermentation approach to lysine production is currently being explored by USDA's researchers in Peoria. But unlike the pure L-lysine product of Pfizer's process, USDA's goal is a microorganism, high in lysine-rich protein, that can be grown by fermentation, harvested, dried and added whole to animal feeds. Chief qualifications (in addition to high-lysine content): digestibility, lack of toxicity, presence of amino acid in a form that is readily absorbed. A similar project at the National Research Council of Canada has uncovered culturing techniques that almost quadruple yields of lysine (CW, Technology Newsletter, Dec. 8).

Now midway through the experimental project, USDA researchers have found two or three organisms in their collection of 8,000 cultures that look promising. But it's still too early to predict yields or cost of lysine produced by this method.

Despite the apparent disadvantages of recovering lysine from blood pro-

tein, this source isn't ready to be counted out. Wilson & Co. (Chicago) has been working on lysine, expects to get into production in the near future. Other meat packers, however, question the commercial feasibility of purifying lysine from blood, feel that it's limited to use as an animal feed supplement in less pure form.

One clue to the commercial attraction of lysine from blood lies in the potential market for other blood-protein derivatives. For example, if blood were processed for the recovery of higher-priced, and lately popular, arginine and histidine, lysine might be considered a by-product. But the limited demand (in the hundred-kilo range) of the costlier amino acids would not solve the problem of producing lysine from blood in carload quantities.

Volume Economy: At \$12/lb., pure lysine has a limited market potential (see box). To extend its applications to large-volume outlets, most producers agree, costs will have to be cut drastically—probably to the \$6-9/lb. range.

Pfizer is counting on a considerable store of fermentation know-how to keep its L-lysine in a competitive position; Du Pont and Dow are relying on syntheses to do the job. But regardless of the method employed, producers are confident that they will be ready to back lysine's move into volume markets.

LYSINE PROSPECTS

THE VALUE OF LYSINE as a dietary supplement is a controversial topic. Opinions range all the way from proponents' outspoken acclaim to skeptics' equally vociferous doubts about its contribution to human nutrition. And though lysine has yet to prove its scientific case, it could be a real commercial sleeper.

NEAR FUTURE: If lysine does live up to boosters' expectations, its first move would probably be an extension of current uses in pharmaceutical preparations. It now goes into geriatric and pediatric formulas, serves as an aid to metabolic processes, stimulates appetite. Normal balanced diets generally supply sufficient lysine for human needs. But the addition of amino acids to vitamin preparations may prove desirable for therapeutic treatment of dietary deficiencies.

LONG-RANGE OUTLOOK: The really big market that lysine has set its sights on is cereal grain products. By one estimate, these staples (in breakfast cereals, breads, etc.) make up 60% of the bulk of lysine-deficient foods. Lysine's second big objective (its first is to win acceptance): lower production costs that will enable food companies to absorb the cost of lysine supplements (though some bakers may wish to pass the cost of premium "amino acid-enriched" bread on to consumers).

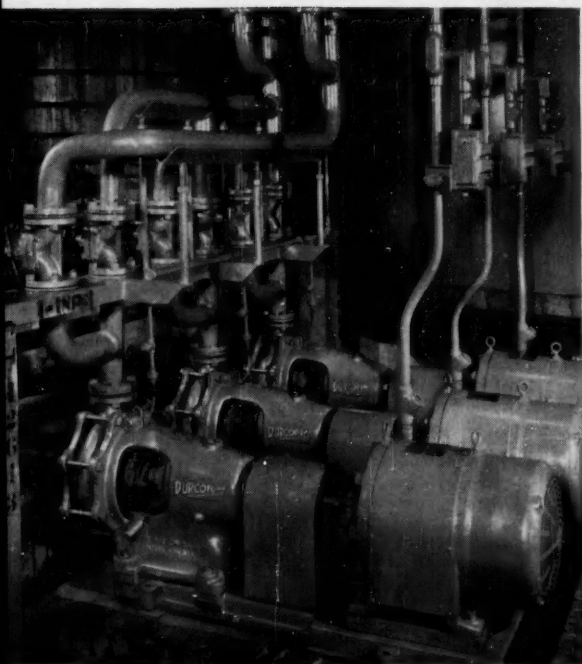
For reliability in America's great
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DURCOPUMPS

Durcopumps pictured in service at

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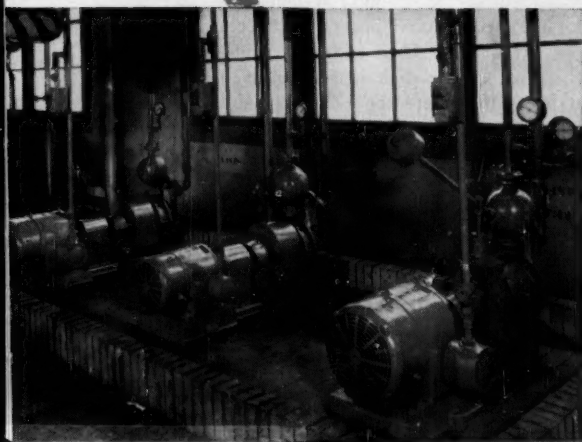
The Duriron Company has been serving American Cyanamid Company for many years by providing chemical service equipment to handle their severe corrosives safely and reliably.

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SPECIALTIES

Shampoos Get the Scientific Sell



Helene Curtis **ENDEN**—the first proven medical treatment in shampoo form!—No prescription needed!

Itchy scalp, itching, itching, dandruff, or severe itching. It just is an amazingly effective and a rich-foaming shampoo all over. You have never used anything like it, as pleasant and so easy. What's more, it gives results even after other shampoos failed—ends dandruff, itching, good. While you shampoo, it gets in the trouble spots. Between washes, it actually inhibits bacteria. Use it regularly and your scalp problems will be over. It's proved 95% effective in 2 years in over 100,000 clinical tests. Dermatologists and skin specialists have given it their highest praise. Clinical tests show Dandruff Treatment has showed 95% of all dandruff

patients enjoyed positive benefits. While the medications in ENDEX have been medically approved for many years, science was unable to combine them in a pleasant form until now. A wonderful shampoo for the whole family whether they have dandruff problems or not. Even children can use ENDEX instead of an ordinary shampoo. For it is a superior shampoo in its own right as well as a dandruff treatment that prevents dandruff problems from starting. ENDEX makes hair look "alive" and healthy, gives it softness and new shine. And you'll discover ENDEX makes your scalp feel so fresh—for dandruff is with you for an ordinary shampoo. To end dandruff problems and play safe, switch to ENDEX for your regular weekly shampoo.



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only \$1.50
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Medication in a shampoo...that works!

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is the first liquid medicated shampoo that is completely pure, safe, easy to use with a pleasing fragrance. The large 6 1/2 ounce bottle costs only...



150

Pharmaceutical approach is further driven home by adding: "No prescription necessary."

MAKERS of the newest crop of hair-care items were buttonholing the doctors last week at a meeting of the American Academy of Dermatology and Syphilology, showing them the results of clinical studies, giving them copies of papers being sent to medical journals. Reason: they are looking for medical support to lend plausibility to claims for their new antidandruff preparations.

So far, four firms are in quest of the fillip to sales promotions:

- Max Factor (Hollywood), with its Seb's after-shampoo treatment.
- Bristol-Myers (New York), with its similar Theradan treatment.
- Shulton, Inc. (Clifton, N.J.), with its Thylox shampoo.
- Helene Curtis (Minneapolis), with its Enden shampoo.

Expectations are that these antian-

druff agents, all introduced in the past 18 months, will soon be joined by two other products with similar sets of claims—a brand-new item (probably a shampoo) from Revlon, and a new formulation of the 1930's best seller, Fitch's Dandruff Remover Shampoo by the current trademark owner, Grove Laboratories (St. Louis).

Shampoo makers hope that medical approval (which Fitch never got) will allow the dandruff angle to make a comeback as a shampoo seller. Such a pitch has been little used since the Federal Trade Commission questioned the Fitch claims back in 1950.

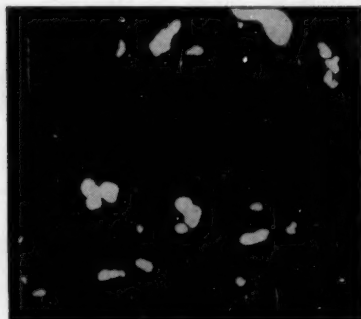
Cosmetics houses have learned, however, that the public is still worried about dandruff problems. A little over four years ago, pharmaceutical maker Abbott Labs introduced its Selsun. Sold on a doctor's prescription only—

because of toxicity (particularly to eyes) of its principal ingredient, colloidal selenium sulfide—the product is the first antidandruff agent to be accepted by medical men. Subsequent popular interest showed that people were still worried by dandruff—they'd just lost faith in dandruff cures. Then the race was on to get out an over-the-counter product that, like Selsun, could inspire such confidence.

Dust Catcher: Shulton and Curtis, in their search, raced to the same target—the old bottle of sulfur shampoo that had been gathering dust on the druggist's shelf. Contents of the bottle (dusted off) were upgraded: the colloidal sulfur was made more active, a perfume with a medicinal note was added to almost cover up the sulfur smell, a bacteriostat (Actamer in Enden) or fungicide (salicylanilide in

ALCOA ATOMIZED ALUMINUM POWDER now readily available

*Reduced military demand frees large quantities
for growing list of industrial and chemical uses*



Photomicrograph of ALCOA Atomized Aluminum Powder No. 120 at 100x. Non-leaving. Average mesh size—100% through 40 mesh, 40% through 325 mesh. Average particle diameter, 26 microns. Specific gravity approximately 2.72. Bulking value .0441 gal/lb.

ALCOA® Atomized Aluminum Powder is a finely divided, granular aluminum powder produced by blowing molten aluminum through fine atomizing nozzles and collecting the product in a dust collector. Particles are more or less spherical or tear shaped, with a relatively low surface area.

Because ALCOA Atomized Aluminum Powder has high fuel value and is chemically reactive, it has found widespread use in explosives both during and since World War II. Reduced military requirements now have released large quantities of atomized aluminum powder to meet the rapidly increasing civilian demands for this versatile product.

APPLICATIONS

The potential uses for ALCOA Atomized Aluminum Powder have not been fully exploited. New markets are opening every day. Some of the more interesting current uses follow:

PLASTIC DIES—Mixed with synthetic resins (like the new epoxies) to produce stamping or forming dies, ALCOA Atomized Aluminum Powder provides better heat transfer, appearance, dimensional stability and malleability, and reduces shrinkage as well.

EXOTHERMIC REACTIONS—Used where high heat and a reduced metal are desired.

EXPANDED (AERATED) CONCRETE—Mixed with cement, sand and water.

PYROTECHNICS and EXPLOSIVES

CHEMICAL USES—Aluminum's strong reducing power and ease in replacing metals from other compounds and solutions are utilized to recover gold and silver from cyanide solutions and help in the production of alum by reducing ferric iron to the ferrous form.

CERAMIC MIXTURES—Gives added strength to ceramic forms.

COLD SOLDERS—Mixes with vinyl resins to form a plastic compound.

HOT SOLDERS—Used in filling solders which then require less heat than regular tin alloy solders.

POWDER METALLURGY—Placed in a die and compressed to a solid shape.

GRINDING WHEELS—Improves uniformity of dimensions and disperses heat evenly throughout wheel.

REFRACTORY SAGGERS—Permits higher temperatures, and extends service life.

LUTING COMPOUNDS—Improves heat transfer in solutions.

CATALYST CARRIERS

REDUCING AGENT—Used successfully as a substitute for zinc.

POLYETHYLENE PRODUCTS—Minimizes shrinkage.

WRITE FOR SAMPLES

Perhaps versatile ALCOA Atomized Aluminum Powder can be applied profitably to your own products or processes. We will gladly send you complete data on the various grades available and supply your technical staff with experimental samples. Write today to ALUMINUM COMPANY OF AMERICA, PIGMENTS DIVISION, 1796-M Alcoa Building, Pittsburgh 19, Pa.



THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS



SPECIALTIES

Thylox) was added, and a mild, synthetic detergent took the place of soap.

Not all dermatologists agree that sulfur shampoo is effective, but those who do, say it works this way: the disulfide link, which anchors the outer film of skin to an inner skin layer, is loosened, allowing the shampoo to remove all the layer at one time, rather than letting it flake off as dandruff.

Two-Step: Max Factor, on the other hand, believes that a separate fungicide treatment after washing the hair is the way to go at the problem. Factor's Sebb contains Vancide 89, a form of Esso Research's SR-406 purified by R. T. Vanderbilt Co., Inc. SR-406 is otherwise used in agriculture, paint, vinyl film. Sebb is aimed primarily at severe cases of dandruff, usually a fungus condition. Bristol-Myers' Theradan also contains a fungicide (a combination of *bis*-[lauryltrimethyl ammonium] polythionate, tetradecylamine, and N-lauryl sarcosine) with an added "grooming" agent.

Neither Sebb nor Theradan is a shampoo. Thus, in promoting them, the manufacturers contend that whatever a shampoo's medicinal effect, it is washed away with the rinse. The shampoo makers say, on the other hand, that the sulfur gets its work done before rinsing. Most doctors agree that any of the new products "must stay on top of the head a while (one-half to eight hours) and be used at least once every three or four days to show satisfactory results."

New Trend? Makers of the two non-shampoo products see for themselves a specialized market, probably in the neighborhood of \$5 million/year. Although neither shampoo is yet selling as well as the older, well-distributed Sebb (Theradan is still in only six test markets), manufacturers do not forget that an estimated 70 million people in the U.S. have dandruff of one kind or another.

The fact that a dandruff-fighting shampoo must be kept on the head for some time, plus its slightly disagreeable odor, higher price (\$1.50 a bottle) and slightly reduced sudsing qualities would seem to prevent it from being a serious threat to ordinary shampoos.

As the maker of one top-selling shampoo says, "You have to either show the customer spectacular results or put a devil of a lot of money in advertising to make a dent in this busi-

ness." He doesn't believe that the sulfur products will do either.

One exception, however—at least so far as advertising is concerned—might turn out to be the Revlon entry. Revlon would likely promote its product on its popular "\$64,000 Question" TV program. That kind of campaign might force the entire industry back on Fitch's old dandruff bandwagon.

Systemics Score

Results of a 12-state test program on systemic insecticides for cotton were presented to the National Cotton Council's Cotton Production Conference last week in Birmingham, Ala., and they solidly favor the new chemicals.

On trial were two systemics—American Cyanamid's Thimet (formerly called Cyanamid 3911) and Bayer's compound No. 19639. Both proved

out well. Some highlights of the test program:

- Most effective way of using the materials was to apply the dry compound, in a 50-50 mix with carbon dust, to seeds.

- Excellent control of thrips, aphids, spidermites was obtained with dosages of 1 lb./acre. This control lasted 4-6 weeks.

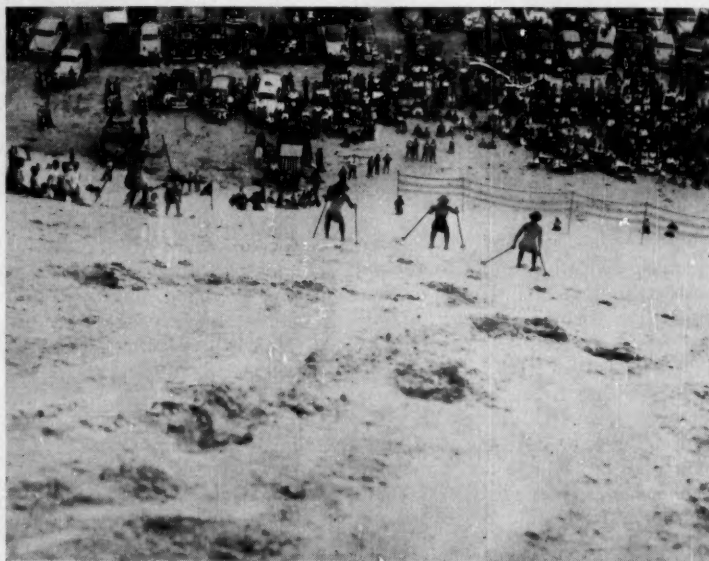
- Treated plants produced 39% more cotton/acre than untreated plants in areas where aphids were a serious problem.

But the systemics have these drawbacks:

- Seed germination was retarded in many cases.

- Newly emerged plants were slightly affected by the insecticides—but this was rarely carried onto the true leaves of the older plants.

- Very toxic materials, the insecticides are best applied by specialists' custom-treatments.



Ski Time Down South

"TOWERING Vigoro Mountain, Skier's Paradise." It hasn't quite come to that, but one of Swift & Co.'s plants has become the ski center of the Deep South. Swift, maker of the specialty fertilizer Vigoro, mines phosphates outside Bartow, Fla.—and some 3 million tons of

tailings from the flotation-separation process have been piled into what is the highest "mountain" in the state (330 ft. above sea level). Crowds of ski enthusiasts gather there on weekends, clamber up the hill, and slide down on water skis. Police have counted some 8,000 cars nearby.

TRITON X-100

*...for detergent duty
...light or heavy*

TRITON X-100 really fills a variety of needs in liquid home detergents. This non-ionic surfactant can clean walls and floors, gently wash the sheerest lingerie, or remove grease and caked residue from pans, cutlery, and dishes. And only TRITON X-100 does all these jobs so well because only TRITON X-100 combines superior cleansing properties with excellent foaming and zephyr-like gentleness.



How good is TRITON X-100 as an all-around surfactant? Well, test after test on fabrics, metals, glass, and plastics shows that its overall soil removal efficiency is as high or higher than any other surface-active agent. Because it's an excellent emulsifier, it also compares equally well in preventing dirt from being redeposited. Yet, TRITON X-100 is completely safe on finishes and fabrics when properly formulated.

TRITON X-100 can be formulated with many other ingredients such as TRITON X-301, alkyl aryl sulfonates, and sanitizers. Write today for complete information and samples.



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Spencer is presently seeking men with enthusiasm, drive, and a desire for future progress in the field of sales. Preferably we would like these men to have a technical degree. To those who qualify we offer excellent opportunities for future advancement in a rapidly expanding organization where annual sales average \$45 million in its short 10-year life.

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Continual development of new products and increasing scope of our sales activities has created openings in our sales groups. For these we prefer men with plastics processing experience. Sales experience would also be desirable but not a necessity. Location would be East Coast or Mid-West.

INDUSTRIAL CHEMICAL SALES

This would involve the sale of Spencer industrial chemicals in tank car and tank truck quantities to a wide variety of industries where Spencer has successfully established an excellent reputation for service. The high competitive conditions presently existing offer the opportunity for a quick demonstration of sales effort. It is desirable that this man have at least two years successful sales experience.

SALES TRAINEE

Opening for a college graduate under 30 with a technical background. We expect the men selected to qualify themselves for promotion and transfer to a territorial sales assignment within a reasonable period.

If you have the honest desire to succeed in the field of sales and feel you would qualify in one of the above mentioned fields, please forward complete resume of your experience and background and approximate salary requirements to:

Field Sales Manager

Industrial & Plastics Products

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Dwight Building

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(Continued on opposite page)

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